

955

The Boston Medical and Surgical Journal

TABLE OF CONTENTS

May 17, 1923

ORIGINAL ARTICLES.

The Operability of Prostatic Obstruction. By J. Dellinger Barney, M.D., F.A.C.S., Boston.....	755
Transactions of the New England Branch of the American Urological Association. By Edward L. Young, Jr., M.D., Boston.....	760
Early History of Medical Journalism in New England. By Robert M. Green, A.B., M.D., Boston.....	769
Health Examinations. By Donald B. Armstrong, M.D., New York.....	772
Clinical Study of Trichinosis, with Case Reports, By Joseph Ireland, M.D., Boston.....	773

EDITORIALS.

George Bruce Shattuck.....	777
New Medical Era in China.....	781
Osborn M. Schloss Resigns.....	782

MISCELLANY.

The Massachusetts Public Health Conference.....	782
-------------------------------------------------	-----

Worcester District Medical Society.....	784
The Springfield Academy of Medicine.....	785
Rockefeller Foundation Aids German Science.....	785
Registration of Physicians.....	786
Measles and Drug Rash.....	786
Deaths Due to Illuminating Gas.....	786
Gold Salts in Therapeutics.....	789
The International Congress of the History of Medicine.....	787
Two Massachusetts Medical Colleges.....	787

News Items.....	787
-----------------	-----

OBITUARY.

George Amory Sargent, M.D.....	787
Recent Death.....	787

NOTICES.

Meeting of the Boston Association for the Prevention and Relief of Heart Disease.....	788
Annual Spring Conference, New England Division, American Red Cross.....	788
Society Meetings.....	788

Original Articles.

THE OPERABILITY OF PROSTATIC OBSTRUCTION.*

BY J. DELLINGER BARNEY, M.D., F.A.C.S., BOSTON,

Chief of Service, Genito-Urinary Department, Massachusetts General Hospital; Instructor in Genito-Urinary Surgery, Harvard Medical School.

To my mind, the word "operability" implies the ability on the part of the surgeon first, to properly execute the technicalities of whatever operation is decided upon; second, to be able to give his patient reasonable assurance that the operation will make him better. On the part of the patient it implies, first, the ability to successfully undergo the necessary preoperative treatment; second, to stand the operation itself, and third, to survive the ordeals of convalescence until he is discharged from the hospital.

The surgeon must realize that while the execution of a suprapubic operation is sometimes difficult, that of the perineal operation is even more so; he must realize that in all cases the choice of the anesthetic and the preoperative

and postoperative care often require more experience, judgment and painstaking, time-consuming skill than the operation itself. For this reason prostatectomy is not an operation to be undertaken at a distance where the surgeon is unable to see his patient at least once a day from the time of entrance to the time of discharge.

While the experienced prostatectomist will often be able to carry a feeble old man through the ordeal where the occasional operator would undoubtedly fail, there are a certain number of these cases which, for one reason or another, are obviously beyond the point where anything but palliation can be considered. Among something over 300 personal and hospital patients whose records I have reviewed, there have been 59 whose condition was such that they were considered inoperable, having in mind the requirements already given for operability. In stating that about one-fifth of the patients were inoperable, it must be said that they were almost entirely of the class which one sees in a large public hospital; the percentage in private practice is very much smaller.

Of the cases classed as inoperable, I wish first to take up those with cancer, this disease being found in from 15 to 20 per cent. of all cases of prostatic obstruction. When one considers that over one-third of these cases have metastases in the bones or elsewhere at the time they are first seen, and that in all, except an occasional early

*Read at a meeting of the Worcester District Medical Society, Dec. 13, 1922.

case accidentally discovered, the disease has progressed beyond the reach of the knife or of radium, the possibility of cure is seen to be *nil*. In other words, operation should be undertaken only where no metastases can be demonstrated by x-ray or otherwise and where the disease is early and therefore more or less localized. In such cases a perineal operation may be undertaken with the removal of every fragment of suspicious tissue from the region of the bladder neck. Whether or not radium shall be used in conjunction with such a procedure is an open question. Personally I have doubt as to its efficiency and have seen it do actual harm to the rectum and other structures. While no patient seems to have been cured of cancer of the prostate by operation, there is no doubt that in many instances he may be given much comfort during the remainder of his life. One must not forget, however, that operative interference may sometimes excite a slow growing cancer to extreme activity with recurrences and metastases of an extraordinary degree of rapidity and extent. Another type of patient with prostatic cancer demanding operation is the one with complete or partial retention of urine, whose frequency and dysuria is marked, whose stream is slow and small, and who cannot be catheterized at all or only with much difficulty. In such a case one is justified in doing a simple cystotomy with the fixation of a self-retaining catheter or permanent tube in the bladder. Nine out of 20 cases of cancer in my records were so treated and several lived out their time in comparative comfort by this means. Of the remaining 11, four died in the hospital, a few days or weeks after entrance without being operated on at all; 7 others, after being carefully studied, put on catheter drainage and generally improved, were discharged to report for further observation.

Thirty-nine cases with benign prostatic obstruction were not considered to be within the limits of operability, although in 14 of these, permanent suprapubic drainage was established to relieve the more or less complete retention from which they were suffering. Several of these latter were discharged with instructions to report for further observation, the idea being that they might subsequently be operable. This has proved to be the case in a few. One man, 77 years old, was in such wretched condition that his early death was looked for, but under the influence of adequate and continuous urinary drainage he improved to such an extent that eight months later he survived a suprapubic prostatectomy and is now an active, comfortable and useful citizen. Another patient went through his final operation with equal success after four months of suprapubic drainage, he being held up at the outset because of suspected cancer, which later proved to be benign. Cystotomy only was done in others for various reasons, including extreme old age, obesity, marked arteriosclerosis, cardiac lesions, pyonephrosis,

malignant disease of other organs, and uremia. Six cases died in the hospital after cystotomy. In some the condition was obviously hopeless from the start; in others whose condition was not bad and who were given the benefit of every known means for improvement, the advent of uremia, pneumonia, sepsis or cardiac failure, closed the scene in an unexpectedly short time.

Twenty-five benign cases were not considered suitable even for cystotomy. Three died in the hospital shortly after entrance, one of cardio-renal insufficiency, two of uremia. Surgical interference was deemed unnecessary in the others, owing either to the mild symptoms and poor condition, or to the marked relief given by simple dilatation of the urethra combined with drainage.

Before closing my remarks on these 59 inoperable cases, let me remind you again that they formed nearly one-fifth of all the cases seen, and that 15 of them (over 25 per cent.) died in the hospital in spite of (I think not because of) every effort that could be made to get them into better condition. Also it is significant that 20 cases (practically one-third of the total number) were definitely malignant. In other words, when one talks of the operability and the mortality of prostatic obstruction, he should remember to include in his narrative, not only the cases in which operation is out of the question but also those which are practically moribund when they reach the hospital. The brilliant results reported by various writers comprise those cases in which the standards already enumerated at the beginning of this paper can be fulfilled, and which, as has been already pointed out, form only about four-fifths of all the cases seen.

I wish now to consider the patient with prostatic obstruction whose operability is entirely probable either when he is first seen, or who may be brought up to this point by appropriate treatment. In the discussion of these cases I shall take for granted the ability of the surgeon to carry out his part of the program, as otherwise the conclusions arrived at will be based upon false premises. That the surgeon, no matter how experienced he may be, or how good his judgment, is not infallible, is shown by the fact that not all of his operated cases survive. A large series of cases may be operated upon without a fatality, when suddenly the scene changes and death in various forms appears upon the stage. The most accurate picture is, therefore, one which extends over a number of years. For this purpose I have gone over the records of several years, finding 250 patients on whom prostatectomy has been performed, with a general mortality of 18.8 per cent. When one considers that these patients were mostly of the usual class seen in a public hospital, neglected, maltreated, syphilitic, alcoholic, the death rate has not been abnormal.

Experience has long since taught us that the patient with prostatic obstruction, especially

the one with complete retention, must not be operated upon the moment he enters the hospital, a procedure which was formerly carried out with considerable regularity even in the memory of many of us who are not very old. The patient must have his retention relieved either by an inlying catheter, or by the suprapubic route, and he must be similarly drained, even though he has but a few ounces of residual urine and no particular difficulty in urination. The method of drainage, whether by catheter or suprapubic tube, will depend largely upon which operation is to be performed. If the perineal or the one-stage suprapubic operation is to be done, catheter drainage will be instituted; if a two-stage suprapubic operation is elected, the first step will naturally involve suprapubic drainage. While this is not the place to argue the pros and cons of one method or another, it appears to us in this vicinity that the suprapubic operation, especially when done in two stages, is the most satisfactory procedure in the long run.

The records show that 48 cases were done by a one-stage perineal operation and six by a two-stage perineal operation. Suprapubic operations were done 197 times by the one-stage method in 117 and by the two-stage method in 80. While it is true that the one-stage suprapubic operation has been done more often, it includes mostly the early cases, whereas the two-stage operation has been done almost exclusively in the later years. It seems to me that the nature of these cases is such that no hard and fast rule can be made as to which operation is the best. For patients with cancer of the prostate I do not hesitate to say that catheter drainage preliminary to a perineal operation is extremely satisfactory, although there are certain cases in which the obstruction at the bladder neck will not admit a catheter and in these cases suprapubic drainage must be established. This does not interfere in the least with the subsequent perineal operation but should be avoided if possible on the ground that it presents an additional operation with its possibilities of danger. There are also certain types of benign prostate in feeble old men about whose operability I may have grave doubt. Rather than open the bladder at once, with the possibility of not being able to remove the prostate later and with the certainty of never being able to close the bladder again, I prefer to use catheter drainage with a view to removing the prostate by the perineal route at a favorable time. If it does not appear that this operation can be borne, the patient has not been harmed by the preliminary drainage. On the other hand, one must consider that certain cases may require drainage for a very long time and that before this time is up the advent of urethritis, peri-urethral abscess, or epididymitis may demand the removal of the catheter and the establishment of a suprapubic drain. There are also

certain cases whose prostate is either so irritable or of such a size or shape that the catheter soon becomes intolerable.

Finally, it must not be forgotten that if the drainage is to be adequate it must be continuous, and in order to attain this end, constant attention and readjustment may be necessary. This will require the services of either the surgeon himself or of an experienced nurse, and neither may be available at the moment. On the other hand, suprapubic drainage when properly established is rarely a cause of discomfort, may be continued almost indefinitely with relatively little attention, and is entirely adequate. For badly infected bladders it certainly should be chosen as the best method of drainage.

In certain cases of greatly overdistended bladders with an uninfected urine, the gradual emptying of the bladder may be indicated. While this may be accomplished by fractional catheterization it is better done by means of a simple apparatus. This consists merely of a U-shaped glass tube, to one end of which the catheter is attached and to the other end the tube leading to a bottle. By elevating this U tube, kept in an inverted position, to a position where the urine barely forces itself over the top, and by gradually lowering it as the polyuria ceases and the bladder resumes its former tonicity, very gradual and almost automatic depletion of the urinary tract may be accomplished. When this point is reached one can then proceed by the method which seems best suited to the case.

I have dwelt at some length upon the matter of drainage as I believe its efficient accomplishment has a very definite bearing upon the operability of the case. The question arises sooner or later as to how long drainage should be continued. This is a difficult decision at times, but on the whole it may be said that a few days more is better than a few days less than seems necessary. It should be continued, however, during the entire preoperative period until one is sure beyond reasonable doubt that the patient has reached a point where he can safely go through the operation. Meantime other details must be seen to and these are quite as essential to success as is drainage. The fluid intake must be forced to the limit of tolerance either by mouth, by rectum or by subcutaneous injection of salt solution, or by a combination of all three methods, the idea being first to combat the oliguria which so often follows decompression of the distended bladder, and after this has been accomplished, to encourage the kidneys to excrete as much urine as possible. During this time the value of an experienced and cheerful nurse cannot be overestimated. But here, too, judgment born of experience must be exercised. The patient may be most coöperative and drink vast quantities of water but without appreciably increasing his output. In this event the adminis-

tration of normal saline solution by the sub-pectoral route may turn impending defeat into success. On the other hand, it not infrequently happens in these old men that a weak heart will not tolerate the administration of large quantities of fluid by any method, and one finds himself on the horns of a dilemma the escape from which may tax all his ability. While some of these cases will thus prove to be inoperable, others may be eventually pulled through by careful attention to the circulatory apparatus.

The character as well as the quantity of the urine must be carefully watched. It will generally be found that a previously clear and uninfected urine will eventually contain pus and colon bacilli. The advent of these elements cannot be avoided so far as I know by any means at our disposal. The usual antiseptics, most prominent of which is hexamethylenamin combined with acid sodium phosphate seem to be of no avail unless it be that they diminish the virulence of the infection. At times, however, the onset of infection is sudden and severe, accompanied not only by the usual features of infection, but often preceded or accompanied by a fall in blood pressure and in the amount of urine. During this attack and for some time after, unusual vigilance is necessary, as the picture may change with surprising rapidity from that of comparative health to one of desperate illness accompanied by a dry, red tongue, nausea and vomiting, rapid, feeble pulse, chills, high temperature, low blood pressure and markedly decreased renal output. One attack may be followed by a second, or even a third, the recovery from each being slow and requiring careful nursing. It is, therefore, obvious that the advent of infection is more desirable before than after operation. For this reason I think there is no question that the patient whose urine is already infected before he seeks relief is often a better risk than he who acquires his infection during the preoperative period. In other words, the patient has immunized himself. With the idea of establishing artificial immunity, vaccines composed of dead colon bacilli have been used, but without much success. From March, 1915, to July, 1917, patients coming to our clinic with an uninfected urine were given from one to four injections of these vaccines containing from 500,000,000 to 1,500,000,000 dead colon bacilli. While there were practically no reactions following the injection the net result seemed to be uninfluenced by this treatment and it has been abandoned as not affecting the operability of the case. Similar vaccines have been used in other clinics and with equally unsatisfactory results. The theory of this procedure is admirable, but its practice has not yet been perfected.

During his preoperative treatment of the patient, the surgeon is aided by various tests which indicate more or less accurately what sort of a risk he is dealing with. While many elab-

orate tests have been devised, I believe we have all settled upon phenolsulphonephthalein as being the simplest and most reliable. This test should be done every few days up to the time of operation. If satisfactory improvement is being made the appearance time will generally decrease and the amount excreted in one or two hours will increase. When it is obvious that the highest limit has been reached it is generally believed that one is safe in operating. Meantime, however, the estimation of blood urea or of blood nitrogen should be made at equally frequent intervals. When the figure obtained in this estimation has reached what seems to be its lowest limit, the surgeon may feel that this, together with the high phthalein excretion, indicates that he may proceed with safety. While it may seem superfluous I wish to emphasize the fact that regardless of what these tests show, the operator should still look upon his patient with the eye of a trained surgeon. For, in spite of what the laboratory may reveal the experienced operator with unerring surgical instinct will often find clinical evidence that his patient is not yet ready for the operation. After all, one's clinical judgment is sometimes the best guide. We have all seen patients go through a long preoperative period of study and preparation responding faultlessly to every test which was tried, and yet they have gone to pieces after operation, exhibiting evidences of renal or circulatory failure which the laboratory tests showed to be impossible. These experiences demonstrate beyond a doubt that there is still an unknown factor, the nature of which is obscure and for which no test has yet been devised, which influences the outcome of these cases. It is obvious, therefore, that further study is necessary to solve the riddle which has occupied the attention of surgeons in every land.

Before taking up the question of the choice of anesthesia or the operation itself, I wish to say a word about the occasional case of diabetes which one sees complicating prostatic obstruction. There were 5 such cases in the group which I have reviewed, a percentage of 1.6. Two died after a perineal operation under spinal anesthesia, one on the twelfth, one on the sixteenth day, the advent of coma closing the scene in one, while postoperative hemorrhage occurred in the other. The other 3 survived a one-stage suprapubic operation, nitrous oxide oxygen anesthesia being used in two, spinal anesthesia in one. While it, therefore, is possible to operate upon such cases, it is certainly safe to regard the diabetic prostate as a poor risk and resort to palliative measures whenever possible.

The question of anesthesia must now be considered. Many surgeons use straight ether, others prefer nitrous oxide gas and oxygen, while there are those who use spinal anesthesia almost exclusively. It is, therefore, clear that each form of anesthesia must have merit or it would not be employed by skilful and experi-

enced operators. While this is probably true, it is equally true that each of these anesthetics has its drawbacks. It, therefore, becomes necessary to make a choice of the anesthesia to be employed, for there is no doubt in my mind that upon this choice the outcome of the case often depends. As it is known that ether has an unfavorable effect upon the kidney and an irritating effect upon the bronchial mucosa, it would seem to be unwise to select this form of anesthesia where the renal condition is poor or where bronchitis exists. It is also well known that nitrous oxide gas, even when combined with oxygen, reacts unfavorably upon a bad heart and one should hesitate to use it under these conditions. Experimental and clinical observation has shown that spinal anesthesia may cause a marked fall of blood pressure and it has been found that where the blood pressure was already low and marked arteriosclerosis existed, untoward results have been produced. As these conditions are not uncommon in the old man with prostatic obstruction, the use of this form of anesthesia seems often unwise. In view of these doubts and uncertainties I have undertaken a careful study of the effects of anesthesia in a series of 250 patients operated upon for prostatic obstruction in the genito-urinary service at the Massachusetts General Hospital. There were 251 anesthetics consisting of spinal in 101, nitrous oxide oxygen in 78, and ether in 68. The mortality of the whole group was 18.8 per cent., consisting of 47 cases, comprising 28 spinal anesthetics or 27.45 per cent.; 11 ethers, or 16.1 per cent., and 8 nitrous oxide oxygen anesthetics, or 10.2 per cent. While it is seen that the mortality was highest among those having spinal anesthesia it must be remembered that it was given deliberately to those which were thought to be the poorest risks for the reason that we have regarded it as the safest anesthetic. A careful study of all the factors entering into this question left no doubt in my mind that had ether or nitrous oxide oxygen been administered to the patients in this group the mortality would have been still higher. Generally speaking, if a death is due to anesthesia it is apt to occur very shortly after operation. Among the spinal cases 6 of the 28 patients (21.4 per cent.) died within 48 hours after operation; among the ether cases 3 (27.2 per cent.) died in the same period of time (it will be noted that the percentage is about the same in each), whereas of the 78 patients who were given nitrous oxide oxygen, there were only 8 deaths and these occurred several days or weeks after operation. While it is obvious that the latter anesthetic is extremely satisfactory it cannot be administered in all cases for the reasons already pointed out. As it is also obvious that ether is definitely contraindicated in many instances, one finds himself with nothing to select but spinal anesthesia. The fact of the matter is that not one of these three anesthetics is

devoid of danger, a point which should not be lost sight of in considering a patient's operability.

I do not propose to discuss the pros and cons of the perineal or suprapubic operation. Each has its adherents and in each type of operation the result depends largely upon the surgeon who performs it.

Coming now to the period of convalescence, what can we do to shorten this period and remove its dangers? The effects of the anesthesia, the loss of blood, possibly combined with more or less shock, make the days immediately following operation particularly critical. The burden put upon kidney and heart has been severe and each must receive its appropriate attention. The subpectoral injection of 500 to 1000 c.c. of normal salt solution before the patient leaves the operating table is of great advantage in tiding him over the time when he is nauseated or for other reasons unable to take much, if any, fluids by mouth. The use of rectal tubes at this time either for the evacuation of gas or for the administration of tap water is to be deprecated because of the possibility of inviting hemorrhage from the prostatic cavity. Irrigation of the bladder should be scrupulously avoided for the same reason; the only irrigation employed being the injection of a few drams to clear the catheter or tube, of clots.

Feeble old men should be gotten out of bed, or at least, be kept in a sitting posture as early as possible after operation. The combination of a sluggish circulation, a large fluid intake and the recumbent posture invites stasis of dependent portions, especially of the lung, and this may spell disaster. I believe that this can be achieved earlier and with less discomfort after the perineal operation, but it is surprising how easily it may be accomplished after the suprapubic operation.

While postoperative flatus may be largely avoided by careful preoperative catharsis, it may and often does occur. Generally speaking it is better not and even unnecessary to move the bowels for several days after operation, but if care is used, one can insert a large soft rubber catheter into the rectum as an aid in the expulsion of gas from the bowel. At times the application of a large, hot turpentine stupe to the abdomen will be satisfactory; sometimes the administration of pituitrin will accomplish the desired result. In any event, it is important to relieve distention early as the more pronounced it becomes the more difficult it is to relieve.

Keeping in mind the possibility of cardiac or renal insufficiency, even though preoperative study showed nothing to be feared on this score, careful watch should be kept of the heart action and urinary output. While digitalis is a most valuable drug it is quite as undesirable to give it where it is not needed as to withhold it when it is. If the amount of urine does not show a satisfactory increase each day, even though the

patient is drinking well, salt solution should be given early and in large amount. It is easier to head off renal insufficiency than to try to overcome it after it is well established. This unfortunate complication is often heralded by hiccoughs which may be almost malignant in their persistence and severity. While the means which are taken to avoid or dissipate uremia will often result in a disappearance of the hiccoughs they are sometimes not so easily vanquished and are to be regarded as an extremely unfavorable symptom. Gastric lavage may be successful but it is discouraging to realize that there is no one specific for this condition.

While this paper is conspicuous for its omission of many interesting, important and still debatable matters connected with prostatectomy, the writer has tried to touch upon the more vital issues which affect operability. He believes that if the surgeon looks ahead not only to the operation but to the preoperative and postoperative problems, he will regard these patients as requiring more thought, study and skill than almost any type of case with which he has to deal. Here, especially, the words of Lanfranc, quoted by Harvey Cushing, are most timely—"A surgeon is nothing if ignorant of medicine. In a word, one must be familiar with both departments of medicine."

TRANSACTIONS OF THE NEW ENGLAND BRANCH OF THE AMERICAN UROLOGICAL ASSOCIATION.

A regular meeting was held at the Harvard Club, Boston, on February 27, 1923.

Dr. E. L. Merritt of Fall River was elected to membership.

PRESENTATION OF SPECIMENS AND REPORTS OF CASES.

Dr. R. F. O'Neil reported a case of ectopic kidney, and showed cystograms of a case of cancer of the bladder.

Dr. O. D. Phelps: I would like to report another large prostate from our service at Worcester City Hospital. There is nothing remarkable about the case or previous history except the size of the gland. It weighed 210 grams.

A year ago, Dr. Bieberbach reported a case from our service which weighed 360 grams. These are the largest prostates that we have met with in our section.

I would like also to report a case, and show a specimen. A man of seventy-one has catheterized himself for the past twelve years. Six years ago, he broke off the tip of a Bougie catheter, supposedly in the deep urethra; night before last, owing to an acute retention, I went in and got the point of the catheter, which was only moderately encrusted, although it had been in the bladder for about six years. The interesting

point about the stricture was that it was uniform throughout the entire length, and fibrous.

Dr. A. L. Chute: Some years ago I operated upon a pelvic kidney in which a part of the blood supply came from below, presumably from the sacralis media. Apparently this is one of the sources of blood supply of the kidney in early fetal life when it is unusually low in the pelvis. Besides this there were in this case two branches from the aorta and one from the internal iliac. This kidney was unrotated, with the hilum projecting forward, which is the position that the kidney occupies during the time that it is low in the pelvis. This kidney was removed, not because of the mild pyelitis that it showed, but because of the potential danger which I believed it would be in case of pregnancy.

Dr. Edward Reynolds of Boston read a paper on

STERILITY.

Dr. Reynolds: I can hardly speak freely on this subject without dealing with both your specialty as genito-urinary surgeons, and mine as a gynecologist, without some criticism about the way both specialties approach the subject of sterility. I am desirous of uttering any criticisms which I may make solely in a spirit of constructive criticism, and if in anything I say you think that I am speaking in a way of disagreeable criticism, I trust you will attribute it to my limited talents, rather than to my intention.

It seems to me that the crux of this subject, and the main course of what seems to us, as we see cases referred by other gentlemen, the mistakes which previous attendants have often made in diagnosis, are due to a misapprehension of the nature of sterile matings, to a failure in fact to appreciate the terms which they are using.

We may speak correctly of sterile matings because the facts involved in years of marriage without children show that that mating is sterile, but we ought not to speak of the sterility of individuals except in rare instances, and those are usually very obvious. Almost anybody can recognize the presence of an infantile testicle or an atrophied testicle, or the results of a double epididymitis, and similarly almost everybody can recognize an infantile uterus or an atresia of the vagina. Those people are sterile individuals, but leaving out those few obvious things and salpingitis, it is the rarest thing in practice to see sterile individuals. Most sterile marriages are due to decreased fertility in one individual, or in both partners, and we ought always to realize that the first point in diagnosis and in treatment is to recognize that in almost all cases there is decreased fertility on one side or

the other, or both, rather than sterility, and thus to approach our patients in an effort to distinguish whether they are of high fertility, of high or low normal fertility, or of low fertility. That point cleared up in our minds makes a great difference in our approach to the subject.

In the differential diagnosis between the two sexes—and I take it that most of you will agree with our opinion from a pretty large number of cases, that the male is responsible in about 50 per cent. of the cases of sterility, there is a great advantage in the diagnosis of the degree of fertility in the case of the male from the fact that we can actually inspect his spermatozoa under the microscope, whereas we cannot see the ovum that is waiting for fertilization; and it is therefore of the inspection of the spermatozoa that I wish first to speak. You all know that the spermatozoa are formed in the testicle, are ejaculated through the vas deferens and mixed with the secretions of the seminal vesicles and the prostate. They are secreted in enormous numbers, numbers which seem preposterous when only one is to be utilized. Lode, a German investigator, has estimated that the number of spermatozoa in a normal ejaculation varies between 125,000,000 and 250,000,000. That may be exaggerated, but the conditions in the attempt to count such an enormous number of motile objects entering and leaving the field render accuracy impossible. They are secreted in enormous numbers.

The points which we think of importance in the examination of the semen are the number of spermatozoa, their vitality, their morphology, and the conditions to which they are exposed while still in the secretions of the male. Delessen, doing experimental work in dogs, found that he could not rely upon impregnation of the female unless the male possessed at least one-half of what he considered the normal number of spermatozoa, and unless the percentage of motility was also in the upper quarter of a scale which he constructed. From our observations in the human race we are sure that high numbers and percentage of motility are essential elements in fertility, but that in order to interpret their meaning accurately we must add a study of the degree of vitality of the spermatozoa and their morphology. The enormous number secreted is explained by the dangers which they encounter in their normal habitat. Decrease in the numbers is, however, usually associated with decreased vitality, and very frequently with abnormal morphology. Mere decrease in the numbers such as one sees when one epididymis is closed or one testicle atrophied but with normal vitality and morphology undoubtedly decreases the frequency with which the patient will impregnate his wife, on a numerical basis, but does not decrease it nearly as much as when the decrease is due to debility of one kind or another, although both testicles are active, and

this is especially true when it is accompanied by an excess of abnormal morphology. Another very important point, and one I think, to speak frankly, which is entirely too much neglected by the genito-urinary surgeons, is that any abnormality in the secretions of the vesicle or prostate is apt to produce a complete semen which is hostile and destructive to the spermatozoa. We are a little blind in our knowledge of what the secretions of the vesicles are, and how to distinguish them in the mixed semen which is formed. They may have the same effect as the prostatic semen. There is no question, in our opinion, from a study of many specimens, that very moderate abnormalities of the prostate may produce mixed semen which is destructive to the spermatozoa. The prostatic semen contains normally a moderate amount of leucocytes and a moderate amount of mucus. In the moderate enlargements of what one calls the irritated prostate, and even in long standing and marked congestion of the prostate without inflammatory disease and without essential enlargement, you find a semen which contains an excess of mucus and perhaps a hyperleucocytosis. You examine the fresh specimen immediately after liquefaction, and you see an abundance of the vitalized spermatozoa. You examine it a little later and you will see a large proportion or all of those spermatozoa entangled in the mucus and not making progress. You make a postcoital examination of the woman and find no spermatozoa beyond the vagina and those that are seen there have become entangled in the mucus and die of exhaustion. For some reason if there is a hyperleucocytosis there is a biochemical destruction of the spermatozoa. For some reason or other, when the so-called starch bodies of the prostate are present in large numbers the spermatozoa seem to have lost their vitality. We don't know why, but we are sure that that is so.

Now all this leads up to our belief that the only method by which one can form an accurate estimate of the degree of fertility in a given man is by careful and more or less prolonged study of a freshly ejaculated specimen of the whole specimen, the admixture obtained by normal ejaculation. Without that you cannot estimate the number of spermatozoa contained in the semen, and they vary so in different areas of the semen that the study should embrace a considerable number of slides and all the space of the slide. Without that you cannot estimate the percentage of dead spermatozoa which are always present, no matter how soon you examine the semen. Also, you cannot estimate their vitality except from the freshly ejaculated specimen of the whole semen. The trained eye can then gather that estimate roughly from the character of the motion, or can obtain it by the length of time they maintain good, active motion when kept in an incubator, but you cannot tell the degree of vitality unless you have them in

admixture with the other secretions which make the semen. We believe that the estimate of the degree of fertility in the individual is of the highest importance; and we believe—excuse me if I speak frankly—that the sooner the mass of genito-urinary surgeons abandon the supposition that men are either fertile or sterile, and begin to estimate the degree of fertility, and that the sooner they abandon the idea that they can estimate the degree of sterility by the few spermatozoa that are produced by massage of the passages, and reserve their opinion until they study the specimen produced from the normal ejaculation of the semen freshly made, the sooner will they reach an accurate and comprehensive knowledge of the fertility of the man they are examining. I don't wish to minimize the importance of general conditions, history and examination of the organs, but I am speaking of the microscopic examination as being the most important single examination. The same criticism may be made of the gynecologist who takes a loop full of secretion from the cervix and finds spermatozoa there, and believes that he can then say that the man and woman are fertile, and that it is all right, and the man and woman only have to wait, when on more careful examination of both sexes the cause of the sterility would be apparent. It means careful, thorough examination of the mixed specimen of semen and of the several secretions of the female after coitus to form an estimate of the degree of fertility of the two individuals, and this from microscopy must be checked by the results of the other local and general examinations.

Now the reason why the degree of fertility seems to us so important is that in the first place, with the exceptions of which I have spoken, it is decreased fertility which is present, and not sterility, and in the second place, if one side is of even moderately decreased fertility, the other side must be of the highest fertility in order to produce a fertile marriage; and that if both sides are moderately decreased in fertility, the marriage is likely to be sterile.

I want then to revert to what I have emphasized all through, and which is the absolutely important thing, that although we may speak of the mating as sterile, we must realize that a sterile mating usually depends on merely decreased fertility of one or both individuals, and except in the evident abnormalities, sterility of the individual hardly exists.

I have spoken at some length on a somewhat complicated subject—I feel that I have covered it very imperfectly, because if one goes into particulars, one obscures the main points. I do not feel like going into the interesting question about relative fertility from conditions outside of the genito-urinary organs, but we are confident that it exists from those causes. From lack of time I have not entered, other than incidentally, into the decreased fertilities of the female.

DR. DONALD MACOMBER, Boston: I think you might all be interested, perhaps, to hear discussed a little more in detail some of the points that Dr. Reynolds has brought out, particularly on the examination of the semen, and the various conclusions that one may deduce from this examination. In the first place, you get a fresh specimen of semen, and as you all know, such a specimen is in the form of a jelly when ejaculated. If you take specimens and examine them immediately, under the microscope, you will find that even in a fairly normal specimen there are a great many areas where no spermatozoa will be found whatever. We believe that the explanation of that fact is because the prostatic secretion and the secretion from the seminal vesicles hasn't mixed thoroughly with the secretion from the vasa deferentia, which contains to a large extent, the spermatozoa. In other areas of that specimen you will find large numbers of spermatozoa at first relatively quiet, that is, their motility hasn't developed to the highest extent. This is in normal specimens. As liquefaction takes place, the spermatozoa attain a high degree of motility; and those secretions mixed together form the semen, which should have an opalescent look and the characteristic odor and which should have a consistency a little bit stickier than water. If you put a platinum loop into it, there is a tendency for it to string just the slightest bit, but there is no stringing out. Examining that under the microscope, you will find that it is filled with enormous numbers of spermatozoa which have the characteristic morphology. After this gross inspection and the inspection under the microscope, when the spermatozoa are alive, it becomes necessary to make smears to examine them in stained specimens. The technique is to make a thin smear of the semen, dry it, and fix the film with heat and put that in a 1 per cent. solution of chlorazene, which removes some of the mucus and prostatic salts which interfere with staining. The specimen stays in there, depending on the amount of mucus present, for a longer or shorter time, and is then taken out and stained for a short time with carbol fuchsin. That stains the tail and middle piece; it also stains the body of the spermatozoa, but does not stain the chromatin; and then if you counterstain with Loeffler's methylene blue, you have a beautiful specimen showing the red tail and middle piece and blue body, and have a chance to make a good estimate of the morphology of the spermatozoa.

Now that is the process we go through in examining every specimen of semen. In certain abnormal conditions you will find in the first place that the amount will be somewhat reduced. That may not be particularly important, but it may have some bearing because the bulk of the secretion comes from either prostate or seminal vesicles. Then there may be an increase of mucus. You may find, on putting in a loop, you will get the drop stringing out for an inch or

more, when you take it up from the surface of the liquid. When you examine such a specimen under the microscope, you are apt to find actual prostatic shreds, the same sort of shreds you get in the urine after massaging the prostate, and which you find will have the same appearance as these shreds you get in the semen; and for that reason I associate that kind of appearance with trouble in the prostate; and when you examine the prostate of such a patient, it is usually the boggy, congested prostate which you are familiar with, and usually not the infected prostate with a lot of pus. Although there will be in these shreds an increased number of leucocytes, whenever spermatozoa penetrate the shreds, they are usually killed or entangled, showing that there is some abnormality of the prostatic secretion. You will also see under the microscope an increased number of leucocytes and red blood cells, and sometimes the prostatic concretions or starch bodies will be definitely increased. In such specimens, for some reason or other, the number of spermatozoa is usually reduced, even with normal testicles and with no obstruction in the vasa deferentia. When these cases are treated, when the prostatic condition is cleared up, you are apt to get a marked increase in the number of spermatozoa coming on rapidly; if the case is nothing more than congestion, *i.e.*, no infection with it, we believe that you can get a rapid return to normal. We have had cases where there were no spermatozoa on two occasions, and then sending the patient to a urologist, and having a treatment instituted, within two or three months have had a perfectly normal specimen with a high number of spermatozoa present. I don't know how you explain it; there is possibly some swelling which closes off the openings of the vasa, but it is a fact that in that type you are apt to have a reduced number of spermatozoa.

There is a third type of semen where instead of having a moderate stringing out of mucus and shreds in the semen you put in your platinum loop, and practically the whole specimen comes with it like the tenacious mucus in sputum. It is a most extraordinary thing, and in such a specimen as that you are apt to have no spermatozoa at all even when the patient has pretty good testicles. We believe from the cases of that kind which have been examined by urologists working with us, that there is usually trouble in the seminal vesicles. The specimen when you look at it under the microscope has pus and blood cells in it as the others do, but the characteristic thing about it is the increase of tenacious mucus.

Now, as Dr. Reynolds said, we always go through these various tests; and we get, as I have indicated, hints as to the pathological conditions in the genito-urinary tract from such an examination. We also get hints as to the degree of fertility of the male, and that is what we are after.

Now I want to say a word about estimating the fertility of a given male. Of course, you can't estimate it with certainty in a given percentage class. You can't say that a patient is 50 per cent. fertile; but in certain work we have done on animals we found we were able to estimate in an accurate way the fertility of individuals by their mating records; and the way we did that was either to start with a race of animals which had a low degree of fertility due to inbreeding, or we produced a low degree of fertility by a deficient diet. Then we mated them with one another and with more highly fertile animals, and observed the results. We were able to do what we couldn't do in humans—to make the biological test—take both partners in that mating and mate them with other animals of a known degree of fertility, and in that way we were able to estimate the degrees of fertility. Often we found, too, that these animals whose fertilities were reduced would have a sterile mating, and if we mated them with highly fertile animals they would both promptly reproduce. That is an important fact because under the old conception those animals would be considered from their first mating as sterile animals, but from their subsequent record they both proved to be fertile, but their fertility was reduced.

To come to the practical point with human beings—you have got to take your history, your physical examination of your male; you have got to see what his environment is; the nervous factors are very important; and sedentary habits of life are also important. You have got to take all of those things into consideration, and the question of disease such as gonorrhoea and syphilis. After getting the history you have got to make a most thorough physical examination, and then a careful local examination, estimating the size of the testicles, the condition of the prostate, and of the vesicles if they can be felt, and then examine a specimen of semen. Now when you have got all through that, you have a pretty definite idea in your mind of what that man is capable of, what his fertility is, but you can't form a conclusive picture until you have seen what those spermatozoa are actually able to accomplish in the secretions of the woman. That gives you your actual biological test. It is true that if the woman's secretions happen to be abnormal, you are up against it; but I am supposing a case where the woman is normal and you are trying to estimate the fertility of the male. Now you can follow the spermatozoa in the vagina, in the cervix and up into the uterus; and in that way you get as complete an estimate as it is possible to make with the methods at your command, of the fertility of that male.

Now there are several cautions. In the first place, there is such a thing as a blank cartridge. You can have specimens of semen taken at different times which give entirely different read-

ings. You can have, for instance—some veterinarian has made the experiment of counting the spermatozoa in the semen of bulls after various numbers of times of being put to the cow, and it has been found that the number progressively falls, and that is true in human beings, and you have to make allowance for previous conditions there. There is also the fact that for no reason we can see, the specimens do vary. If you find a specimen that is A1, you can rest assured that your man is all right; but if you find a specimen that is poor, do not condemn him on one examination.

Another thing which is important is that because a male has shown living spermatozoa at a given time, that is no proof that the conditions at the time when you see him are identically the same. One case in point may serve to illustrate that—a member of this Society examined a patient who subsequently came to us, and found abundant normal spermatozoa. The patient came to us a year after that time, and there was absolute aspermia. We subsequently referred him for operation. The testicles were delivered, a puncture made in the testicles and in the epididymes and no spermatozoa found whatever. In the space of a year some nonvenereal infection took place because there were fresh adhesions about the epididymes, and there was beginning spermatocoele. That was an extraordinary picture to us. The fact that within a year you could have an absolute aspermia—that is a caution never to trust a single examination.

As regards what you can do about decreased fertility—if you find that a specimen shows a reduced number of spermatozoa with perhaps not very good morphology and some evidence of prostatic irritation, are you going to be able to do anything about it? It has been our experience that a good deal can be done about it. In the first place, you all know that treating such a prostate is a relatively simple matter. It may not be a question of the degree of prostatic irritation which would lead that man to consult a physician on account of health, but when such a prostate is treated, we find that the condition of the semen improves very markedly. In addition there are certain factors which are as important as treating the prostate. The first thing is the question of removing the cause, if possible. I mentioned two causes which seem to us important in that regard; one is the modern sedentary life with lack of exercise, and the second is the extreme nervous tension under which a great many of our modern business men seem to be living. Those two factors, it has seemed to us, are important in reducing fertility. I don't mean that they necessarily cause trouble in the prostate, but I do mean that that sort of trouble is very apt to occur in people who lead sedentary lives; and attention to these things, having the patient take more exercise and let down on the nervous

tension do help a great deal in raising fertility from whatever cause it may be lowered.

There is still a third factor besides increasing the exercise and leading a more normal life, and that is the question of diet. There the dietary factors which seem to be essential to a high degree of fertility are pretty much those which we make use of in training athletes; that is to say, the sort of diet you give at the training table which includes, as you know, a high percentage of protein foods such as meat and milk and eggs. It also includes a high percentage of calcium content in the diet which can be supplied by the milk. It should also not be deficient in any of the various vitamins which may if absent, or present in deficient quantities, upset the health. But the important thing seems to be to take a large percentage of proteins and a large percentage of calcium; and, of course, in addition to those general factors do not forget the local treatment, whatever is necessary to correct the trouble.

DR. A. L. CHUTE, Boston: I regret my inability to discuss Dr. Reynolds' paper intelligently as my activity has been confined almost entirely to the strictly urinary work. I therefore, know little about sterility, and Dr. Reynolds' paper has been most instructive and interesting to me; it has taught me much that was quite new to me. The problem is certainly a most important one; especially so in the light of our diminishing American families, every phase of it should be investigated most carefully. When one thinks of the unfertile matings among one's acquaintances, in people who should have children and who do not, people in whom one has no reason to suppose that the lack of offspring has been due to any disease, one is impressed with the importance of the subject.

I was glad to hear Dr. Reynolds say that little can be told from a specimen of semen obtained by massage of the prostate and vesicles; that to draw any conclusion regarding it the specimen must have been secured by ejaculation. I was interested to find that a specimen of this sort, which I saw a short time ago after an interval of three hours, was filled with motile spermatozoa. This seemed to me pretty good evidence that the sterility was not due to the male.

DR. W. C. QUINBY, Boston: I am sure the Society is to be congratulated on this very interesting contribution. The only remarks which I will make deal with the general causes of aspermia. The local ones you have heard mentioned, and some of them are quite familiar; but the general causes some of us are apt to overlook. I have seen instances of aspermia due to the following causes: in two cases the patient was afflicted with a mild degree of hyperthyroidism. In another instance the underlying cause was a chronic lead poisoning. A third

cause was Addison's disease. A fourth was due to a cyst of the pituitary. And there have been instances where aspermia was due to diabetes; and one instance only where there was no vas on either side: a congenital maldevelopment.

I mention these general causes of aspermia to emphasize the fact that we must remember the whole patient, and that faulty spermatogenesis is not always due to local pathology, but that in many instances it accompanies a systemic fault.

DR. J. W. KEFFE, Providence: I thoroughly enjoyed what was said, but I actually have had no personal experience, and cannot add to what has already been said.

DR. R. F. O'NEIL, Boston: Have you any estimate of the amount of prostatitis which is considered of importance? I have had patients in whom I thought there was a certain amount of leucocytosis from the prostate and some abnormality of secretion, and in whom I thought prolonged massage would be of value. Then there are cases where prostatitis has existed, and it is by no means an infertile union. I would like to know whether the speakers think that a prostatitis does invalidate a seminal fluid.

DR. EDWARD REYNOLDS, Boston: Dr. O'Neil brings up a point which has not been mentioned. Our work on animals brought out that point, and that is that if you take a litter of brothers and sisters and subject them to treatment which will reduce their fertility, you will reduce the fertility of some of those animals enormously and of others very little. You see often in the human race individuals who have become infertile by general conditions. When you look around the community, you see lots of individuals who under the same conditions are having plenty of children. You must reckon with individuality.

Now I think as regards the prostate that the same thing is true. We see plenty of men with swollen prostates whose spermatozoa do not seem to be affected by it and who have full fertility. We also see frequently individuals with defective semen, and with sometimes very little trouble in the prostate in whom we can't help associating seminal deficiency with the condition of the prostate, and who after treatment of the prostate will produce good semen and impregnate their wives, and our test in these cases is that the treatment of the prostate must be kept up until the semen is good, and in cases that come to us from a distance we often feel rather hopeless about getting the genito-urinary surgeon to treat them long enough to get the results. He is apt to treat them only until he gets a cure of the enlargement and then lets them go. In local cases we have often found the semen deficient after the genito-urinary surgeon considered the case finished and have then sent the patient back and asked him to treat

the prostate or other local organs longer even if no apparent reason for treatment existed and until we were satisfied with the semen, and many times a localized difficulty in the passages of the male will be cured and followed by fertility and impregnation of the wives by continued treatment after there does not seem to be enough trouble to consider the genito-urinary organs as any longer the cause of the infertility.

I was interested in what Dr. Quinby said of the troubles and diseases of the ductless glands and about treating the men from the constitutional point of view. We see the non-ovulating ovum many times and trouble with the other glands. We haven't seen it so often in men, and it is interesting to hear about it.

DR. O. D. PHELPS, Worcester: I have, to be specific, two cases—a couple physically perfect as far as any examination can determine; the semen of the male presents an enormous number of spermatozoa active after two hours; as I would term it, they would jump through the microscope at once. Both of the couple are in apparently A1 condition physically, yet no fertility. What I would like to know is what step next can be done, or what is the possible cause of this?

The second case I would like to ask about is a couple, the woman apparently healthy and with a negative blood test. The husband has a positive blood test. The condom specimen from this male presents what to me seem perfectly normal, active spermatozoa a half hour after ejaculation. The female reveals active spermatozoa one hour after coitus. Ten years previously there was a pregnancy. I should be pleased to have any suggestions that these two cases might elicit.

DR. DONALD MACOMBER, Boston: Of course, in the first case you have spoken about every local examination is negative?

DR. PHELPS: Yes.

DR. MACOMBER: Have you tried the test for tubes?

DR. PHELPS: No, I haven't.

DR. MACOMBER: With a woman, granting that normal spermatozoa live in her tract as high as the fundus, then you have two more considerations to rule out: first the tubes and then the ovaries. To take up the tubes first—the Rubin test, that is injecting carbon dioxide gas through the cervix and uterus and out through the tubes offers you a good proof, for it shows whether the tubes are patent. In a way it is negative evidence. A failure to pass the gas doesn't mean the tubes are closed, but if the gas passes, you know that one of the tubes is open. That is an important thing to do. It gives you a fairly good test as to the function of the tubes. Then comes the function of the ovaries. There

are certain conditions such as those which Dr. Quinby mentioned in the male, certain general conditions which may affect the activity of the ovary such as the overactivity of the thyroid which we frequently find associated with inactivity of the ovary.

There are two common conditions in the ovary which cause non-function—a condition of retention cysts and persistent corpora lutea. Both of these conditions cause a moderate enlargement of the ovary, and it is possible if you examine the woman under anesthesia and find persistently such an enlargement of the ovary, to ascribe the trouble to that.

It would seem that in both of those cases the diagnosis came down to the woman, to either her tubes or ovaries, except in the fact that the blood Wassermann in the male was positive. That presumably without causing any demonstrable changes in the spermatozoa can affect their vitality in a way so that you get the death of the fertilized ovum in much the same way you get miscarriage. It certainly is a fact that syphilis is one of the common causes of sterility in the male, and I would hesitate to call a man with positive Wassermann fertile even if he had motile spermatozoa.

DR. EDWARD REYNOLDS: Syphilis causes the death of an ovum after it has developed into a fetus. So it is reasonable to believe that it causes the death of the ovum before it reaches a recognizable size. And we have met many cases in which men with apparently good semen but positive Wassermans have appeared to bear the onus of a sterile mating.

DR. J. H. CUNNINGHAM, Boston: I think while we are more concerned with the examination of the male and how to determine whether the male is sterile or not, I don't doubt but what we would be pleased to know what the carbon dioxide test is and how it is done, whether an anesthetic is used or not.

DR. MACOMBER: The test as was devised by Rubin of New York is done by first introducing a soft silver cannula which can be bent and introduced through the cervical canal into the uterine cavity and which first passed through a urethral tip or Guyon tip. That makes a very satisfactory plug to close the cervix with. You have got to have that gas-tight. Now Rubin's test originally was to take oxygen gas under pressure, and running it through a pressure reducer get it coming at a certain rate bubbling through water, and with a mercury manometer attached on the side so that he would know the pressure. He then put the cannula into the cervical canal to allow the pressure in the uterus to mount as the gas bubbles along through the system until one of two things happened: the pressure reached a point which he thought dangerous to exceed and which he estimated at 250

millimeters of mercury, or there came a sudden drop in the pressure which he interpreted as due to the fact that the gas passed through the fallopian tube. The patient, after allowing a certain amount of gas to pass through the tube, is x-rayed in the upright position which demonstrates the gas beneath the diaphragm. These patients complain of characteristic symptoms, pain in the shoulder when a sufficient amount of gas has accumulated below the diaphragm. So a good many men have given up having the x-rays taken after the patient has these characteristic symptoms. It was found that oxygen was slow in being absorbed and caused much discomfort, so that the test has been modified by using carbon dioxide instead. Then another man discovered that by placing a stethoscope on the abdomen the gas could be actually heard bubbling through the tubes, and then that fact together with the fact that this test as performed under the technique I have just told you, causes a great deal of discomfort, led us to devise a technique of our own which is somewhat as follows: We allow the gas first to expand in an ordinary rubber anesthesia bag; that allows the gas to warm up to the temperature of the room because you know that gas on expanding gets very cold, and such cold gas put into the uterus tends to set up an extreme spasm. You all remember your obstetrical instructions to put on a piece of ice in uterine hemorrhage. Cold gas causes spasm with pain to the patient. We allow the gas to expand and have a three-way stop-cock, and using a glass syringe of about 30 c.c., we draw the gas into the syringe, and changing the stop-cock, we inject it by the pressure of the hand, watching the pressure on the gauge, through the cannula into the uterus. We find if we use the warm gas and are gentle, we can get the gas to pass through the tubes as heard with the stethoscope on the abdomen, and as felt by the hand on the syringe, at a pressure of 40 millimeters. The patients have no discomfort when the test is tried at that low pressure. Where you have closed tubes, you have to raise the pressure somewhat to be fairly certain, but since we have run across certain cases where there was presumed to have been a flare-up of a chronic tubal condition after trying such a test, we have become extremely careful not to run the pressure up too high, and we feel in using our technique, if we have to run the pressure over 100 millimeters, there is some obstruction. We wouldn't diagnose closed tubes, but we would want to repeat. If you don't exceed that pressure, you don't cause damage. We do not put in now an amount which causes the characteristic symptoms. It takes 350 c.c. of gas before you get the patient complaining of symptoms in the shoulder, or enough gas to show on the x-ray plate. In favorable cases we use as little as 15 c.c. and we use this test in that perhaps rather unscientific fashion just as another means at our command for diagnosis. We don't say

that if the gas fails to pass, the patient has closed tubes. Used in that manner it is a very valuable test and gives us much information and we don't stir the patient up.

DR. J. H. CUNNINGHAM, Boston: We all appreciate what we have heard. It has been a tremendously instructive meeting. I have a different conception from what I had before. We must not fail to remember what has been said about repeated examinations for spermatozoa and about vitality and morphology. Perhaps some of us have been led to do surgical operations which we would not have otherwise done if we treated the prostate until the spermatozoa were normal. Personally, I think that the prostate, following infection, has a great deal of influence on the spermatozoa. We have had cases where there were no spermatozoa in condom specimens and where the spermatozoa have reappeared after treatment. So that point is one we should appreciate more.

SURGERY AND DIABETES.*

BY EDWARD L. YOUNG, JR., M.D., BOSTON.

The following report is based on a study of the surgical cases occurring at the Massachusetts General Hospital for five years preceding 1922. All cases are included in which a true diabetes was believed to exist, however mild the disease. Likewise all cases are included which were treated on the surgical side whether they were cases which were operated on or not. This seemed to be worth while because of the uncertainty (to say the least) which most surgeons feel when any case under their care shows evidence of diabetes. This method of handling the material must be recognized as modifying the statistics somewhat in regard to mortality percentage, but from the surgeon's point of view seems to me valuable as perhaps clearing up some lingering doubt as to the change in the nature of various surgical conditions when accompanied by diabetes. Certain questions at once arise when surgery and diabetes seem to conflict: Should we refuse a patient an operation of choice if he has diabetes? If we use ether as an anesthetic in any emergency operation without recognizing an accompanying diabetes, have we necessarily done the patient serious damage? Are wounds in diabetes more liable to sepsis and less kindly in healing? And in general has surgery on diabetes any peculiarities not present in ordinary cases?

In looking over the records of the mild cases, it occasionally seemed difficult from the story alone to be sure they were anything more than temporary glycosurias. Where, as was generally

the case, they were carefully studied by the medical side, no attempt was made to go behind their decisions, but nine cases out of the total number seemed so doubtful that they will be mentioned under their particular group. The omission of these cases does not change materially the mortality percentage.

There were 108 cases with 17 deaths, or if we omit the nine doubtful cases, 99 cases and 16 deaths. We have arbitrarily divided these into three groups.

I. Emergencies such as acute abdominal conditions, fractures, etc., which need immediate treatment, and often immediate anesthesia, where it is easy to overlook the presence of sugar in the urgency of the case.

There were, omitting the doubtful cases, ten cases and two deaths.

1. Acute appendicitis with a pulmonary embolus on the third day.

This case was doing well so far as the diabetes was concerned, in spite of ether anesthesia and lack of dietary preparation. Death did not seem to be influenced by the disease, which was a mild type.

2. Fracture of femur in a woman of 62. The patient had no anesthesia, but died a diabetic death on the twenty-fifth day in spite of treatment. Her urine sugar rose to 7 per cent., her blood sugar to 4 per cent., and she had an increasing acidosis.

II. Various surgical conditions complicated by diabetes. This list includes a wide variety of conditions from precidentia to thyroid cyst, and from hernia to brain tumor. The diabetes never had been recognized in many cases, and had existed from that up to forty years, and the severity was of all degrees. There were forty-six cases with three deaths.

1. Pituitary tumor, who died of meningitis on the eighth day after operation.

2. Umbilical hernia, who died of peritonitis on the fifth day after operation.

Both of these were mild cases who were sugar free at the time of operation, and whose diabetic condition was apparently doing well in spite of their ether anesthesia and operation. How far it can be argued that without the diabetes there might have been no sepsis, or if gas and oxygen had been used instead of ether, trouble would have been avoided, is entirely an academic question.

3. A woman of 61 with a pelvic tumor of unknown nature died on the sixth day without operation with a rising blood and urine sugar and increasing acidosis. She was on a starvation diet, but with carbohydrates increasing to twenty grams at the end.

III. Diabetic gangrene, or sepsis influenced by diabetes.

There were forty-nine cases with eleven deaths. These were divided as follows: Diabetic

*Read at the surgical meeting of the Suffolk District Medical Society, Dec. 27, 1922.

gangrene, twenty-nine cases with seven deaths. Of these twenty-nine:

Three refused operation, went home and were lost sight of.

Three died without operation—two of these came in with diabetic coma and died before anything could be done; one had previously been treated in the Out-Patient Department as a mild case, and on admission to the house was put on starvation treatment for five days. Operation was to have been done when she suddenly started down hill and died before any change of treatment could be started.

Four cases recovered without the need of operation. Three of these had beginning gangrene of the toe, and one a gangrenous area over a bunion. The treatment used was rest, elevation and warmth, and in one case the Alpine lamp. There was no indication, in the records at least, as to why these cases should recover and others of apparently similar nature should need operation. Two of these had mild and two moderately severe diabetes, and one, a man of 72, was markedly arteriosclerotic. In three of the cases the feet were recorded as being warm, but in only one could the dorsalis pedis be felt. Two of the four started with a slight trauma. This leaves *nineteen* cases operated on with four deaths.

The amputations were as follows:

Amputation of thigh—7.

Amputation below knee—5.

Amputation of toe—3.

Reamputations—4.

There were no data given in the records which told with any certainty what determined the choice of operation. There can be little doubt that there were too many reamputations; the failures were all due to the spreading of gangrene and sepsis in the stump. Although in retrospect these were all errors in judgment, at the first operation there was no apparent reason why they should do badly and others seemingly with as poor circulation do so well.

The four deaths are as follows:

1. A man of 60. Amputation of the thigh under spinal anesthesia. He was doing well so far as his diabetes was concerned; his urine was sugar free, and his blood sugar was 0.14 per cent. when he died of a pulmonary embolus on the third day.

2. A man of 47. Amputation of the thigh under spinal anesthesia. The stump did poorly, and although the urine sugar decreased, the acetone and diacetic acid increased and he died on the eighth day.

3. A man of 78 with rapidly spreading gangrene and sepsis of the right foot and leg. Under treatment the urine sugar came down, but the blood sugar remained high, and the high amputation was done as a last resort, but without avail.

4. A man of 48. Amputation of the lower

leg was done under spinal, but because of sloughing of the stump a reamputation at the thigh had to be done. He remained sugar free, but died on the seventh day of pneumonia.

There were *fifteen* cases of sepsis with four deaths.

1. A woman of 51 with a carbuncle, who came in acidotic, was operated on at once with gas and oxygen anesthesia, but continued increasingly acidotic in spite of treatment.

2. A man of 51 with a carbuncle. Vaccines were first used and after several days incision, but he also continued steadily down hill.

3. Two cases of sepsis drained under local anesthesia without any effect on the diabetic symptoms.

In the first two classes diabetes was probably of minor importance in the four operative deaths, as the sepsis described is such as occasionally occurs in the best hands in cases without diabetes.

In the last class it is of course more difficult to say how far the shock of operation influenced the diabetic condition, but so far as one could tell from the record, the diabetic condition was unchanged by anesthesia and operation.

What about anesthesia?

Gas and oxygen was used 28 times.

Spinal was used.....15 times

Local was used.....10 times

Ether was used.....33 times

This shows a very decided tendency to dodge ether, as 86 average cases would certainly have more than 33 ether anesthetics. Four of the fatalities had ether, but on the other hand all four died of definite surgical complications apparently not influenced by the diabetes. Ten of the operated cases that did not die showed a reaction in the increase of sugar in the urine or blood or both, and an increased excretion of acids for from one to seven days. Of these ten cases eight had ether as an anesthetic, one had spinal and one had gas and oxygen, the reaction in both of the last two cases being light. Two of the ether cases had as high as 9 per cent. of sugar in the urine following operation.

The wound in one herniotomy where local was used went badly septic. Whether local is a poor anesthetic in diabetes, as tending to increase the danger of sepsis too much, in a tissue already of lowered resistance, cannot of course be argued on one case.

Fifteen clean wounds became infected.

Two ventral hernias in very fat women.

One hernia done under local.

One cancer of the breast.

Eleven (out of 22) of the amputation stumps. All of the wounds other than these healed kindly and there was no evidence of delayed union in the fractures.

There was no case on the surgical side during this time where any needed operation was refused because of the presence of diabetes alone.

Two cancer cases of somewhat doubtful operability were advised to have radium instead of operation; two other cases, one of hernia and one of abdominal pain, were advised to delay operation, and two other cases, with serious nephritis, were advised to leave well enough alone.

One other thing which these records bring out in a startling fashion is the large number who had no previous knowledge of diabetes. There were twenty-eight in all, nearly a third of the total number. Nor were they by any means all mild cases. Five of these twenty-eight died, four definite diabetic deaths, and several others had a moderately severe type of disease. Two cases had a normal urine when first examined, and developed sugar after operation. None of the fractures in the list had any knowledge of previous diabetes. These two facts taken with the large percentage of such cases bring up the question of the possibility of an acute traumatic diabetes. In carbuncles does the diabetes in every case cause the sepsis, or are there certain cases where the sepsis brings on an acute diabetes?

In all these cases the diabetic treatment varied to meet the individual needs, and was handled in most cases by the medical side. Where there was time for preparation the attempt was made to first get the patient sugar free and then increase the carbohydrate intake to the limit of tolerance. In all cases an increase of carbohydrate for twenty-four hours before operation, in the form of orange juice and oatmeal gruel, was given to combat acidosis, and the same increased carbohydrate diet after operation was used for two or three days. Where immediate interference in a septic case seemed best, a short time was given to get in an extra amount of fluid and some easily assimilated carbohydrate.

As far as these figures go they tend to show (1) that few if any operations which should otherwise be done need necessarily be refused a person merely because he or she has diabetes, provided the patient can have the benefit of skilled medical treatment in preparation, good judgment as to the time of operation and skillfully given anesthesia, preferably gas and oxygen or spinal. (2) That emergency cases demanding immediate operation, or mild diabetic cases urgently needing operation where it is technically difficult to give gas and oxygen, as in cancer of the oral cavity, can be given either with very little increased risk. (3) That there are two types of diabetic gangrene, one of the arteriosclerotic type where the operative indication is the same as in the sclerotic cases, the other where the gangrenous process can generally be influenced and often stopped by appropriate dietetic and local treatment. It is not always possible to differentiate these cases without trying to see what treatment without operation will accomplish; these are often the

cases of fairly good circulation in the feet where the damage started with some definite trauma. In well-chosen cases amputation below the knee or even of the toe can be successfully done. (4) Clean wounds in diabetes heal as kindly as in non-diabetics. (5) In septic cases the diabetes can be much better handled after drainage of the sepsis. Operative delay to give opportunity for medical treatment is generally not wise.

In general the only peculiarity of the handling of surgical cases in diabetes consists in the close co-operation of the medical man and the surgeon, in good judgment in selecting the time and type of operation, and the nature of the anesthetic, and in the skillful administration of the anesthetic.

The large number of cases where the diabetes was first recognized in the hospital adds another argument in favor of periodic physical examination, especially after forty, and also brings up the question of the possibility of the not infrequent occurrence of an acute diabetes following severe sepsis or trauma.

EARLY HISTORY OF MEDICAL JOURNALISM IN NEW ENGLAND.*

BY ROBERT M. GREEN, A.B., M.D., BOSTON.

THE approaching centennial of the Boston Medical and Surgical Journal makes it of interest to review the early history of medical journalism in America, more especially in New England.

During the first century in which our professional predecessors tenanted this continent, medical journals were unknown, even in Europe. Medical books were of course written and imported into the new world; but our ancestors of that period were too much concerned with the struggle for material existence to have much time or disposition for scientific reading, writing, or investigation. Medical education was still largely esoteric and the field of practical experience was its chief school.

The first medical periodical published in the world was apparently the *Acta Medicorum Beroлинensium*, established at Berlin in 1722. During the eighteenth century, other medical journals, more or less short-lived, sprang up in Germany, France, and Great Britain. These beginnings, however, though significant, did not immediately lead to imitation in the new world or indeed result in contributions of permanent value to medical literature.

It was only at the close of the eighteenth century that the first medical journal of America made its appearance. This was the *New York Medical Repository*, whose first number was issued on July 26, 1797. The projectors and con-

*Read at a meeting of the Boston Medical History Club, Dec. 13, 1922.

ductors of this enterprise were Dr. Samuel L. Mitchell, of New York, the principal editor; Dr. Elihu H. Smith, of Connecticut, and Dr. Edward Miller of Delaware. In 1798 the second and most distinguished member of this triumvirate, Dr. Smith, died of yellow fever, then epidemic in New York; but his two colleagues continued the publication. The *Medical Repository* was a quarterly journal, and its pages "were enriched by the contributions of many of the ablest members of the profession at that date." In 1812 Dr. Miller also died, of typhoid, and Dr. Mitchell then associated with himself Dr. James R. Manley, Dr. Felix Pascalis, and Dr. Samuel Ackerly, of whom the first-named soon succeeded Dr. Mitchell as editor-in-chief. Under their administration, the *Medical Repository* was continued until 1820. This first American medical journal was a credit not only to those who conducted and wrote for it but to the spirit of the time which fostered these slender beginnings.

The second American medical periodical was the *Philadelphia Medical and Physical Journal*, begun in Philadelphia in 1803, by Dr. Benjamin Smith Barton of that city. It was devoted to zoology and botany as well as to medicine, and in September, 1804, was succeeded by the *Medical Museum*, which was continued until 1813 under the editorial management of Dr. John Redman Coxe. The *Medical and Physical Journal* was later revived in 1820 and continued under the editorship of Dr. Nathaniel Chapman until 1827, when it was finally merged with the *American Journal of Medical Sciences*. These early Philadelphia medical journals carried on in a new center the tradition so happily begun by the *Medical Repository* in New York. Indeed, we may regard the present *American Journal of Medical Sciences* as their legitimate descendant and successor.

The third center at which medical journalism made its appearance in the new world was Baltimore. Here in 1809 Dr. Tobias Watkins began the publication of the *Baltimore Medical and Physical Recorder*; and in 1811 Dr. Nathaniel Pettey established the *Baltimore Medical and Philosophical Luccum*. These two periodicals were both of short duration, but they are evidence of the early importance of Baltimore as a center of medical education and progress.

The medical journalism of New England began in Boston in 1812 with the publication of the *New England Journal of Medicine and Surgery*. The first issue of this quarterly appeared in January of that year. Its title-page bears the cautiously skeptical motto from Francis Bacon, "*Homo naturae minister et interpret tantum facit et intelligit, quantum de naturae ordine, re vel mente, observaverit; nec amplius scit aut potest.*" The title-page also informs us modestly that the new journal is "conducted by a number of physicians"; nor is it possible from

any explicit statement to learn the names of the editors. Medical journalism in Boston, however, has always borne a familial aspect, and the "*clara et venerabilia nomina*," in its columns, of members of various well-known New England medical families, easily enable a shrewd guess as to the leaders responsible for this new enterprise.

The leading contributors to the first issue of the *New England Journal of Medicine and Surgery* are Dr. John Warren, "Remarks on Angina Pectoris"; Dr. James Jackson, "Remarks on the Morbid Effects of Dentition"; Dr. John C. Warren, "Cases of Apoplexy with Dissections"; Dr. Jacob Bigelow, "Treatment of Injuries Occasioned by Fire," and Dr. Walter Channing, "Remarks on Diseases Resembling Syphilis." These five names appear with constant frequency in the succeeding issues. Others that become associated with them during the passing years are those of Dr. David Townsend, Dr. Aaron Dexter, Dr. John Brooks, Dr. Josiah Bartlett, Dr. John W. Webster, Dr. John Gorham, Dr. B. L. Oliver, and Dr. John Homan. Dr. John Warren died in 1815.

Among these who in 1816 took their medical degrees from Harvard University are noted Dr. Zabdiel Boylston Adams, Dr. Charles A. Cheever, and Dr. John Ware. These young men, destined to be of future professional prominence in Boston, soon began to make their early contributions to medical journalism in the columns of the *New England Journal of Medicine and Surgery*.

In 1825, instead of the usual previous statement, "Conducted by a number of physicians," there appear on the title-page the names of two editors,—Dr. Walter Channing and Dr. John Ware, and under their management the *New England Journal* continued during the remaining three years of its existence.

Already, however, a rival in New England medical journalism had entered the field. On April 29, 1823, just a century ago, appeared the first issue of a new publication, the *Boston Medical Intelligencer*, the first medical weekly in America. Its Latin motto is from Cicero: "*Sufficit si quod fiat intelligamus, etsi quo modo fiat ignoremus.*" It was edited by Dr. Jerome V. C. Smith, evidently one of the medical intransigents of the day, for his name had not appeared in the columns of the *New England Journal of Medicine and Surgery*. He announces in the opening number that "It is the object of this paper to give opportunity of communicating, without delay, histories of recent cases; to develop the character of prevalent diseases; to furnish reasonable information on the subjects that regard public health." It was only a four-page sheet, but contained a variety of interesting material, and was brightly edited. A brief hiatus followed the first number, after which it was published regularly until 1828. At first there appears the name of Robert M. Peck, later

that of John Cotton as proprietor. In 1824 the motto was changed to "*Non est vivere, sed valere vita.*" In this year, too, the *Intelligencer* instituted a staff of agents or correspondents in other states.

Dr. Smith ceased his connection with the *Intelligencer* during 1824. Unfortunately the title-page of this year's volume is missing; but the title-page of the volume for 1825 states that the *Intelligencer* is "conducted by James Wilson, M.D., assisted by an association of physicians." In 1826 the *Intelligencer* changed its form from a four-page folio to an eight-page quarto, and added on its title-page the motto, "The best part of the medical art is the art of avoiding pain." During the year, the size of each issue was increased to sixteen pages.

In 1827, the last year of its independent existence, the *Intelligencer* was edited by Dr. John G. Coffin, the Latin motto disappeared from its pages, and in August the English motto was replaced by the statement that "this paper is devoted to the cause of physical education, and to the means of preventing and of curing diseases." The last issue of the *Intelligencer* is dated February 12, 1828. It contains the editor's valedictory, concluding with the following statement: "On Tuesday, next week, will appear the first number of the *Boston Medical and Surgical Journal*, as a continuation of this paper. When we consider the number, the talents, and experience of the Editors of the forthcoming journal, and their abundant resources for matter, we cannot doubt that their paper will prove generally acceptable, because we feel an assurance that it must be interesting and useful." Apparently the *Intelligencer* was in financial difficulties, of which an amalgamation with the older *New England Journal of Medicine and Surgery* was the obvious solution.

For some time it had been evident that a change of alignment in the current medical journalism of New England was impending. The established and conservative quarterly *Journal* needed the vivacity and frequency of the independent but impetuous *Intelligencer*. A fusion of the two was the best solution of the problems of each, besides eliminating the undesirable duplication of two journals competing in the same field. Without announcement or flourish, this change was effected in February of 1828, when the first number of the *BOSTON MEDICAL AND SURGICAL JOURNAL*, in continuous sequence of date with the *Intelligencer*, was issued under the joint editorship of Dr. John Collins Warren, Dr. Walter Channing, and Dr. John Ware. To these were soon added Dr. Chandler Robbins and Dr. James Wilson; but by 1835 the names of all these editors had been withdrawn and in that year the *JOURNAL* appeared under the sole editorship of the versatile

and indefatigable Dr. J. V. C. Smith, who thus returned to his former position and remained sole editor until 1854 when Dr. George S. Jones became associated with him. In 1855, Dr. Jones was replaced by Dr. W. W. Morland and Dr. Francis Minot. In 1857, Dr. Smith finally retired, after a connection of thirty-four years with medical journalism. Of all figures in New England medical journalism, his is perhaps the most noteworthy; since it was he who established the first medical weekly in America, and who with unflagging persistence and ability remained in charge of the *JOURNAL* for a longer period than any of its former or subsequent editors.

In 1842, a group of Boston physicians evidently felt that the profession needed a more serious and scientific medical journal, and from July of that year to April, 1843, published, under the editorship of Dr. Charles E. Ware and Dr. Samuel Parkman, *The New England Quarterly Journal of Medicine and Surgery*. This short-lived periodical would have passed into oblivion but for a single paper that appeared in its last issue, "The Contagiousness of Puerperal Fever," by Oliver Wendell Holmes.

On December 9, 1846, there appeared in the *BOSTON MEDICAL AND SURGICAL JOURNAL* the famous and classically brief communication by Dr. John C. Warren on "Inhalation of Ethereal Vapor for the Prevention of Pain in Surgical Operations," describing the early operations under ether at the Massachusetts General Hospital. From a historic point of view, these two papers, by Dr. Holmes and Dr. Warren, may be regarded as the most memorable that have ever appeared in American medical journals, for they mark the beginning of the two greatest advances in medicine made in the nineteenth century, the discovery and application of surgical anesthesia (the word first used by Dr. Holmes) and the understanding of the true nature of infective disease.

Of the subsequent history of the *BOSTON MEDICAL AND SURGICAL JOURNAL* it is not my province to speak. Until 1860 it remained under the editorship of Dr. J. Collins Warren. Its fortunes have fluctuated, financially and otherwise, but its merit has remained always essentially the same. It represents a worthy survival of the fittest from the past of medical journalism in New England. It derives its form from the *Medical Intelligencer*, its substance from the *New England Journal of Medicine and Surgery*, its spirit from both.

BIBLIOGRAPHY.

- Drake, Daniel: Discourses before the Cincinnati Medical Library Association, 1852.
Davis, X. S.: Medical Journalism in the United States. Chicago Medical Examiner, July, 1870, Vol. xi, p. 413 ff.
Billings, J. S.: Medical Journals of the United States. *BOSTON MEDICAL AND SURGICAL JOURNAL*, Jan. 2, 1879, Vol. c, No. 1.

HEALTH EXAMINATIONS.

BY DONALD B. ARMSTRONG, M.D., NEW YORK,

Executive Officer National Health Council.

THE writer is not a clinician, and has been in public health administrative work for a long time. Consequently he is scarcely competent to discuss the clinical aspects of medical or health examination work. We shall therefore be concerned primarily with questions of education and organization aimed at the furtherance of the health examination idea.

However, it does seem worth while to point out that the health examination has a fresh clinical aspect, akin to, yet distinct from ordinary medical practice. The physician is trained to detect and to treat more or less serious illness. In the health examination he is called upon to examine the well or the nearly well. This means that he will be concerned primarily with minor defects, unfortunate hygienic habits, etc. To meet the growing public interest in this type of service, therefore, there must be a parallel growing interest on the part of the physician in personal hygiene. He must be willing and able to give detailed advice about diet, sleep, rest, exercise, etc. The bringing of the under-par individual up to a normal functional basis will become an important obligation, significant to economic welfare and to individual happiness.

Then, too, from this clinical side, emphasis should be placed upon the detection of early disease. This can be accomplished only by intensive training in the recognition of incipient disease signs—of tuberculosis, cancer, cardiovascular conditions, etc. In particular this seems to apply to the next great field for preventive medicine to conquer, namely, the field of degenerative diseases in adult life. It seems safe to say that the basis of our attack upon this problem of largely preventable, or postponable, illness is the health examination.

As Dr. Rankin of North Carolina has so effectively emphasized, there is a great unoccupied field of medicine, from three to five times the size of the present medical service range. The occupation of this field does not involve socialized medicine. In so far as it is concerned with the detection of early disease, with advice about personal hygiene, and with the essential corollary, the health examination, it is almost altogether, if not wholly, incidental to the augmentation and expansion of private medical practice—the development of the private practice of preventive medicine.

On the other hand, the speaker and his immediate associates are making an approach to this problem from a closely associated but slightly different point of view. The National Health Council and practically all of the member agencies have a direct and fundamental interest in

health examinations. The health examination is basic in the programs of the National Tuberculosis Association, the American Society for Control of Cancer, the National Committee for Mental Hygiene, the American Social Hygiene Association, the several child health agencies, etc. From another angle it is, of course, equally important to the American Medical Association.

In order to encourage the practice of health examinations these agencies have undertaken sporadic efforts, as have health officers, health educators, etc., aimed at urging the public to go to the doctor for a thorough regular health examination. There is some evidence to indicate that the public will respond to this type of persuasion. In Framingham, Mass., for instance, as a part of the work of the Health and Tuberculosis Demonstration, where about 13,000 people have been given a medical examination through one channel or another, where over 70 per cent. of them have been referred to local physicians and dentists for medical advice or treatment for minor or serious ills, and where a continuous campaign advocating that the average citizen go regularly to his doctor for a medical examination has been carried out over a period of several years, it was recently discovered, in a survey of a substantial proportion of the community, that 29 per cent. of those visited had been to their own physicians some time during the preceding six months for medical examination or advice for reasons other than acute or recognized chronic affections.

As a result of these experiences, as a result of the disclosures of examination work in the Army, through the Life Extension Institute, through the insurance companies, etc., these national health agencies are convinced that it is worth while to attempt this type of public persuasion on a large scale. Tentative plans have recently been developed for a three-day Health Days campaign. On one day the emphasis would be placed upon the examination of children; on the second day educational measures would advocate and arrangements provide for the examination of adults; and the third day, probably a Sunday, would be a general appraisal and educational day. In this connection it was planned to develop state and county organizations, through the initiative and under the leadership of health officers, with the full participation of organized medical groups. The Council on Health and Public Instruction of the American Medical Association had under consideration the development of examination forms, and of special instruction leaflets for physicians that might be reprinted from the *Journal of the American Medical Association* and other medical publications. Records were to be kept, reports turned in, prizes offered for the largest number of examinations,—all with the object of encouraging the permanent habit of periodic medical examinations, by the private physician, with adequate compensation, for the rank and

file of the population in general, and particularly for those elements in our adult population not now covered by organized medical diagnostic machinery in schools, factories, and elsewhere.

At the request of the American Medical Association this general program has been deferred until that organization could take up the whole project with its state secretaries and with its local organizations, until proper forms and instruction material could be prepared, and until the way could be paved not only for medical recognition of the importance of the project, but also for full and sympathetic medical coöperation and, indeed, leadership in its consummation. It was therefore decided to postpone the Health Days, with the idea that a probable timely period for such nation-wide propaganda would be in either the spring or the fall of 1923.

It is, of course, recognized that the problem is a twofold one. It is necessary to reach the public, through the press, through the national health organization channels, official and private, and through wide publicity along all lines. On the other hand, it is necessary to reach the physician, to interest him in the constructive, advisory, incipient disease-detecting, health-creative aspects of the health examination. On this latter side in particular it would seem that the medical publications of the United States have now and would have an even greater opportunity in the future for coöperative health conserving effort.

We of course, all recognize the existence of common objectives—for that reason coöperation between medical and lay groups should be easy of accomplishment. We are aiming at the prevention of serious illness, at the promotion of health and at the postponement of unnecessary mortality. Our primary object, after all, is the more extensive and effective use of our actual and potential medical resources. Entirely aside from the future demands of organized medical service there is not today in existence more than one-third of the adequately trained medical personnel that will be necessary to meet the gradually growing demands of private preventive medical practice. It is only through the meeting of this great need that we can establish the foundation for a healthier national life and can carry on, under enlightened medical leadership, the conquest against disease.

JENNER EXHIBITION

THE Wellcome Historical Medical Museum, London, has arranged a special exhibition of personal relics, pictures, engravings, drawings, documents, manuscripts and letters relating to the discovery of vaccination, in connection with the commemoration, on January 26, of the centenary of the death of Dr. Edward Jenner. The exhibition will be open for some months.—*Science.*

A CLINICAL STUDY OF TRICHINOSIS. WITH CASE REPORTS.

BY JOSEPH GARLAND, M.D., BOSTON.

[From the Pediatrics Service of the Boston City Hospital.]

GENERAL CONSIDERATIONS.

TRICHINOSIS, while still to be classed among the rarer diseases, is nevertheless, I believe, of considerably more common occurrence in the community than is generally suspected, especially in view of the fact that many sporadic cases undoubtedly escape from observation without a diagnosis having been made. It may, therefore, be of some value to review the more important facts concerning this disease.

Etiology: The hog, as is well known, is the only animal of practical importance in the spread of the disease. Rats and dogs, in countries where they are used for food, may also serve as the infecting agents. Rats, as susceptible animals, are important, however, in that their bodies are eaten by hogs, thus providing for a succession of infected hogs. Italians are peculiarly liable to infection through the ingestion of "salsiccia," a type of home-made sausage of which they are fond.¹

Pathology: The pathology of trichinosis, according to Blumer, consists of an acute gastro-enteritis with at times small hemorrhages into the mucosa, necrosis, and even ulcers. The liver, heart, muscles and kidneys also may show parenchymatous and fatty changes.

Some authors have claimed that a toxin must be produced, but adult worms have been ground up and injected into the veins of mice without apparent effect. Other investigators have claimed results indicating that toxic substances are produced as the result of the rapid degeneration of the skeletal muscles. The histological picture is that of the destructive effects of a toxic foreign body. No immunity is produced, as second and third attacks have been recorded.²

A skin eruption resembling the rose spots of typhoid may occur, and also herpes labialis, erythema, and occasionally pruritus are sometimes noted. In my own series of seventy-seven cases, pruritus occurred only once. The urine is not characteristic, although the diazo reaction is almost constantly present. The characteristic eosinophilia may be absent in severe and overwhelming infections, and high in the mild cases. This, however, is not of definite prognostic value, as evidenced by the analysis of this series. Living embryos may be found in the spinal fluid, the pressure and cell count may be increased, and there may be other evidence of meningeal irritation. Examination of the feces is unsatisfactory, but a specimen of blood laked in 3 per cent. acetic acid and centrifuged may disclose the larvae. Excised

striated muscle generally shows the embryo or the characteristic focal myositis with infiltration of wandering cells.²

Course: The larvae, encysted in the ingested muscle, are set free when the digestive juices dissolve the cyst walls. The adults then go through the procreative stage in the small intestine, the male worms becoming sexually mature in a few days, and the females showing fully developed embryos in from four to seven days after ingestion. These, on being discharged, require several days to reach the skeletal muscles, for they are rarely found in the latter before the tenth day after the infected muscle is eaten. The adult worms may persist in the intestine for from four to six weeks longer.

The clinical course of the disease has been generally divided into three stages:

First Week—the period of invasion, while the worms are developing in the intestinal tract. During this stage there may be nausea, vomiting, diarrhoea, chills and malaise, abdominal pain, and toward the end of the period more or less pain in the muscles, and temporary local edema. Stiles, in Osler's System of Medicine, mentions the first edema of the eyes at this period. Also at this time the embryos may appear in the serous cavities.

Second Week—the period of dissemination. During this period the embryos are probably discharged into the lymph channels, and from them into the circulation, and are carried by the blood stream to the muscles. This stage is characterized by myositis and muscular tenderness, and often dyspnoea and other respiratory symptoms. The muscles of speech, mastication, and respiration may be involved, but more often those of the extremities. Masseter tenderness was noted in two of the cases hereinafter analyzed. The temperature in this stage may reach 104-105° F., and is often definitely typhoidal in character.

Third Week—the period of encystment. In this period cachexia and edema, especially of the face, may be found. Stiles calls this the second edema, developing in 90 per cent. of the cases about the twenty-fourth day. During this period the more generalized edema which may have been present begins to subside. Secondary infection of the nature of a pneumonia may develop at this time.

Minot and Rackemann³ in 1915 analyzed 102 cases for respiratory signs and symptoms, finding in 50 per cent. no mention of cough or abnormal lung signs at any time during the course of the disease. Of the remaining 50 per cent., 16 cases had cough without physical signs (15.6%), and 17 (16.6%) had cough with abnormal lung signs. Eighteen (17.6%) had abnormal signs in the lungs without cough; 9 (8.8%) had respiratory signs or symptoms sufficient to mask

the underlying diagnosis of trichinosis. There was only one death in this series.

Complications: Blumer believes that the respiratory complications are the most common. Typhoid, coccal infections and femoral thrombosis are occasionally met with. In many patients muscular pain persists for years. Osler mentions one case in the Hedersleben epidemic where weakness persisted eight years after the attack.

Differential Diagnosis: Typhoid fever is the disease from which trichinosis must most frequently be differentiated. The diagnosis of pneumonia may be made erroneously when the pulmonary symptoms are marked, a mistake the liability of which is pointed out by Minot and Rackemann. Trichinosis may simulate meningitis, and cases may be mistaken for frontal sinusitis.¹

Treatment: Prompt and early purgation, while the adults are still in the intestinal tract, is the only effective treatment. The diet should be as in typhoid; after the trichinae are in the circulation the treatment must be symptomatic and supportive. Serum therapy, designed to combat the toxemia, has been attempted, and good results claimed by Salzer,⁴ Schwartel,⁵ and Hall and Wigdor.⁶

Attempts to destroy trichinellae by x-ray and radium exposure have been made with unsatisfactory results by Tyzzer and Honeij,⁷ Salvarsan and neosalvarsan have not proved of value.¹

Prophylaxis: It has been shown that encysted trichinae are killed by heating to 55°C., so the temperature of 58.33°C. required by the U. S. Bureau of Animal Industry as the minimum temperature at which pork products must be cooked in establishments operating under federal inspection, is evidently effective.² Osler advocates the selection of grain fed rather than offal fed hogs for food. In Germany the attempt has been made to inspect microscopically all hog meat, but it is doubtful if this enormous task is warranted in order to effect a protection that can be so completely provided by proper cooking.

STATISTICAL.

The death rate in outbreaks of trichinosis has varied from 0 to 100 per cent. The mortality in the United States is claimed to be about 5 per cent.; the mortality has been much higher in the German epidemics. Kratz, in Germany, reported an epidemic of 337 cases with 10 deaths, or a mortality of 33 per cent.² Stiles collected 14,820 cases in Germany from 1860 to 1897, with 831 fatalities, or a mortality of 5.6 per cent. He reports the death rate as highest from the fourth to the sixth week when the myositis is at its maximum.

Blumer believes that approximately 6 per

cent. of American swine are infected. Osler places this figure at 1.04 to 1.95 per cent., and states that in Germany the proportion is about 1 in 1,852.

Sixty-five cases of trichinosis have been reported in Massachusetts from 1911 to 1920 inclusive, with 15 deaths, or a mortality of 23 per cent. Undoubtedly, however, many mild cases were undiagnosed or unreported.

The records of 77 cases of trichinosis occurring in the Boston City and Massachusetts General Hospitals* from 1887 to 1922 have been analyzed according to the occurrence of important symptoms and signs, blood examinations, pathological findings and severity of symptoms. Only those cases are classed as severe which terminated fatally, seemed to endanger the lives of the patients, or ran a protracted course. The accuracy of such a differentiation is, of course, merely relative. These results are tabulated in as simple a manner as possible:

- 66 (85.7%) general muscular pain.
- 58 (75.3%) muscular tenderness.
- 37 (48.0%) gastro-intestinal symptoms.
- 16 (20.7%) constipation.
- 17 (22.0%) diarrhoea.
- 22 (28.5%) respiratory symptoms.
- 19 (24.6%) pulmonary signs (mild bronchitis to pneumonia).
- 7 (9.0%) both respiratory symptoms and pulmonary signs.
- 24 (31.1%) general edema or edema of extremities.
- 51 (66.2%) edema of the lids (early or late).
- 27 (35.0%) conjunctival signs (injection or hemorrhage).

White counts were reported on 75 cases, ranging from 6,200 to 33,800; 65 (86.6%) had a leucocytosis at some time during the disease of 12,000 or over.

Differential blood counts were made on 74 cases, the eosinophilia ranging from 0 to 69 per cent., with an average eosinophilia of 30.5 per cent.

The highest eosinophile counts occurred fairly late in the disease, probably during the encystment stage. These were slow in returning to normal as a rule, the eosinophilia, in cases which could be followed, persisting in some degree into the convalescence.

- 59 examinations of excised muscle were made.
- 51 (86.4%) of these were positive.
- 8 (13.6%) were negative, although the diagnosis was undoubted.
- 15 (19.5%) were classed as severe cases, with varying eosinophile counts.

In the mild cases the eosinophilia varied from below 10 per cent. to 69 per cent.

Six (7.8%) were fatal. The eosinophile counts of 4 of these were 0.27 per cent., 4 per cent., 17 per cent. All had elevated white counts.

Seven (9%) reported other members of the family similarly affected. In some cases these diagnoses were confirmed.

In going over the autopsy records at the Boston City Hospital,² 14 cases of healed trichinosis were found which had been discovered accidentally at autopsy, with no suggestive history. The occurrence of unrecognized trichinosis becomes, therefore, a matter of some importance. H. U. Williams, of Buffalo, is reported by Osler as having carefully studied the muscles of 505 unselected autopsies, finding 27, or 5.3 per cent., infected with trichinae.

REPORT OF CASES.

Five members of an Italian family, residing in Boston, were admitted to the Boston City Hospital, during December, 1922, with the diagnosis of trichinosis. Four of them, ranging in age from 2 to 8 years, came on the Pediatrics Service; the mother, aged 38, was on the Third Medical Service. All recovered. The father, who gave the same history as the patients of having eaten home-made sausage, escaped infection. The only other member of the family was a nursing infant.

CASE 1. S. C., female, 38, was admitted to the hospital on December 4, complaining of pain in the legs of two weeks' duration, with weakness, prostration, and fever. The pain, originally confined to the legs, soon became generalized. There was vomiting on the first day only. Headache was complained of. The appetite was poor and she was constipated. There was slight cough without expectoration, and without pain in the chest.

Past History: Negative.

Physical Examination: Negative except for slight generalized abdominal tenderness, and tenderness on moderate pressure of all muscles of the body, especially the extremities. The liver edge was palpable.

For about a week there was a typhoidal temperature which rose on the first day to 104°F. and came gradually to normal.

Edema of the extremities developed which gradually decreased as the general condition improved.

She was discharged relieved on January 24.

Blood:	Hgb.	R.C.	W.C.
Dec. 5			13,800
" 8		4,960,000	
" 18		4,257,000	13,000
" 26	85		
	Poly.	Mast.	Eos. L.M.N. Lympho.
Dec. 5	59	0	27 3 11

CASE 2. M. C., female, 8, was admitted on December 4 with the complaint of lethargy and muscle pains.

Physical Examination: Prostrated, with eyes closed. Any motion caused severe pain. Marked tenderness over the neck and intercostal muscles, abdomen, arms, shoulders, buttocks, thighs, and legs.

Reflexes normal. No edema. The symptoms and signs gradually improved, the convalescence being complicated by an upper respiratory infection of the prevalent type. Discharged relieved on January 12.

Blood:	Hgb.	R.C.	W.C.
Dec. 5	102		9,000
" 6			11,000
" 7			38,000
" 20			9,400

	Poly.	Mast.	Eos.	L.M.N. Lympho.
Dec. 5	75	1	3	1
" 6	30		20	4
" 7	61		13	8
" 8	58		16	4
" 9	36		39	4
" 20	46	1	15	4

CASE 3. F. C., male, 6, was admitted December 8, with the story of pain in the muscles, especially of the arms and legs, of two-weeks' duration. Headache and fever were present. As did the others, he gave a history of having eaten home-made sausage a few days previous to the onset of symptoms.

Physical Examination: Entirely negative except for tenderness over the muscles of the anterior part of the thigh.

This tenderness gradually decreased and he was discharged relieved on January 22.

Blood:	Hgb.	R.C.	W.C.
Dec. 11	95	4,910,000	8,000
" 12			10,000
" 21			14,800
" 20			10,800

	Poly.	Mast.	Eos.	L.M.N. Lympho.
Dec. 11	29		60	11
" 11	16		41	44
" 12	24		31	20*
" 21				
" 20	46		33	4

*(22% fragmented cells).

CASE 4. T. C., female, 4, admitted on December 8, with essentially the same story, physical findings and course as Case 3. She was discharged on the same day as Case 3.

Blood:	Hgb.	R.C.	W.C.
Dec. 9			9,200
" 11		5,210,000	8,840
" 12			9,600
" 21			10,400
" 20			14,900

	Poly.	Mast.	Eos.	L.M.N. Lympho.
Dec. 9	67		19	2
" 11	68		18	2
" 12	29		26	1
" 21	39		14	6
" 20	42		19	5

*(13% fragmented cells).

†(4% fragmented cells).

CASE 5. P. C., female, 2, was admitted on December 8. Pain in the muscles of the legs, and tenderness of the gastrocnemii were the only symptoms and signs elicited. These cleared

up rapidly. Convalescence was complicated by acute follicular tonsillitis.

She was discharged on January 19.

Blood:	Hgb.	R.C.	W.C.
Dec. 9		4,900,000	7,600
" 12			10,800
" 21			14,100
" 20			13,400
" 26			16,000
Jan. 15			10,500

	Poly.	Mast.	Eos.	L.M.N. Lympho.
Dec. 9	32		36	5
" 12	28		13	1
" 21	46		14	6
" 20	38		13	9
" 26	40		22	2
Jan. 15	40	1	20	5

*(27% fragmented cells).

None of these cases presented conjunctival manifestations of the infection, nor was edema of the lids noted. The varying degrees of eosinophilia found in this group of mild cases would seem to indicate that the eosinophilia, while of diagnostic significance, cannot be regarded as of prognostic value. The group infection, the history of eating pork, the signs and symptoms, and the high eosinophile counts seemed so certainly to establish the diagnosis that biopsy was not considered necessary or justifiable in these cases.

CONCLUSIONS.

1. The occurrence of infection with *trichinella spiralis* is greater than is ordinarily supposed. That mild and unrecognized cases are not uncommon is evidenced by the findings in routine autopsies.

2. The incidence of constipation and diarrhoea and the degree of eosinophilia are not accurate indices of the severity of the infection, as has been previously supposed.

3. Muscular pain and tenderness, the history of pork ingestion, a high eosinophile count, edema of the lids, and gastro-intestinal symptoms are the most important clinical points in establishing a diagnosis. Conjunctival injection may be a valuable confirmatory sign.

4. Respiratory signs and symptoms have not been encountered as frequently as previously reported. Unmistakable diaphragmatic paralysis is extremely rare.

5. Thorough cooking of pork is the most important prophylactic measure.

402 Marlborough Street.

REFERENCES.

- 1 Nelson's Loose Leaf Medicine.
- 2 Oxford Loose Leaf Medicine.
- 3 Minot & Rackemann: Am. Jour. Med. Sci., Oct., 1915, No. 4, Vol. cl, p. 571.
- 4 Salzer, B.: J.A.M.A., 67: 579 (Aug. 19, 1916).
- 5 Schwartz, B.: J.A.M.A., 69: 884 (Sept. 15, 1917).
- 6 Hall, M. C., and Wigdor, M.: Arch. Int. Med., 22: 601, 1918.
- 7 Tyzzer, E. E., and Honeij, J.: A. J. of Parasitology, 3: 43, 1916.
- 8 By the courtesy of Dr. John J. Dowling, Superintendent of the Boston City Hospital, and Dr. Frederic A. Washburn, Director of the Massachusetts General Hospital.
- 9 By the courtesy of Dr. Frank B. Mallory, Director of the Laboratory.

THE BOSTON Medical and Surgical Journal

Established in 1828

Published by The Massachusetts Medical Society under the jurisdiction of the following named committee:

For three years WILLIAM H. ROBEY, JR., M.D.
ROGER I. LEE, M.D.
ROBERT S. OSSGOOD, M.D.

For two years JAMES S. STONE, M.D.
HORACE D. ARNOLD, M.D.
CHANNING FROTHINGHAM, M.D.

For one year HOMER GAGE, M.D., *Chairman*.
EDWARD C. STREETER, M.D.
EDWARD W. TAYLOR, M.D.

EDITORIAL STAFF.

DAVID L. EDSALL, M.D.
WALTER B. CANNON, M.D.
REID HUNT, M.D.
ROBERT W. LOVETT, M.D.
FRANCIS W. PLABOTT, M.D.
JOHN P. SUTHERLAND, M.D.
S. BERT WOLBACH, M.D.
GEORGE R. MINOT, M.D.
FRANK H. LAHEY, M.D.

WALTER P. BOWEN, M.D., *Managing Editor*.

ASSOCIATE EDITORS.

GEORGE G. SMITH, M.D.
WILLIAM B. BIRD, M.D.
JOSEPH GARLAND, M.D.

SUBSCRIPTION TERMS: \$6.00 per year in advance, postage paid for the United States, \$7.50 per year for all foreign countries belonging to the Postal Union.

Material for early publication should be received not later than noon on Saturday. Orders for reprints must be sent to the printer with galley proof of paper. Upon written request, authors will be furnished free one hundred eight-page reprints, without covers, or the equivalent in pages in articles of greater length.

The Journal does not hold itself responsible for statements made by any contributor.

Communications should be addressed to The Boston Medical and Surgical Journal, 126 Massachusetts Ave., Boston, Mass.

GEORGE BRUNE SHATTUCK.

1845-1923.

DR. SHATTUCK died March 12, 1923, after a protracted and incapacitating illness of several years, which had gradually and, finally, very completely limited his physical activities. During these trying years he faced the problem of living, as a member of his family has expressed it "without the least shadow of complaint or self-bewailment and with an admirable fortitude." Toward the end, deprived even of the capacity of adequate speech, but with mind unimpaired, he enjoyed with undiminished pleasure the visits of his friends and found means to indicate his characteristic sense of humor, difficult as it was of articulate expression. It is not possible to estimate the mental suffering which his limitations caused him, but those who knew him well cannot doubt that death was not unwelcome—a happy solution of his increasing infirmity. It was caused by a recurrent attack of bronchitis from which his failing strength did not permit him to recover.

Dr. Shattuck was born in Boston, August 18, 1845, and was, therefore, in his seventy-eighth

year at the time of his death. He was of distinguished New England ancestry. His earliest forbear, of whom there is record, William Shattuck, was born in England in the third decade of the seventeenth century. Exactly when he came to this country is not known, but it is certain that he died in Watertown, Mass., in 1672, and that he was, for many years, closely identified with the affairs of this old town, settled only ten years later than Plymouth. From this progenitor have descended upwards of ten thousand persons bearing the name of Shattuck. Lemuel Shattuck, genealogist of the family, should be particularly remembered in connection with his original and constructive work in matters of public health. Although he was not a physician, and, in fact, as he states in his autobiographical sketch, was scantily educated even in the elementary schools, he accomplished a monumental work in relation to registration statistics, vital statistics in general and particularly in the development of a plan for the promotion of public and personal health, embodied in a volume of 544 pages. This latter work was doubtless the foundation stone upon which later boards of health were built. He lived in the early part of the last century and was, for many years, closely identified with the medical progress of his time. The descendants of William Shattuck were known for their piety, thrift, material success and public spirit; many of them took an active part in the affairs of the communities in which they lived, and one, at least, carried and used a gun on the 19th of April, 1775, from Lexington to Cambridge. Medicine, as a profession, appears not to have interested them until the latter part of the eighteenth century.

The first of the medical succession, now in its fifth generation, was Benjamin Shattuck, who graduated at Harvard in 1765 and practised his profession in Templeton, Mass., without a medical degree, since this distinction was not obtainable at that time. His son, George Cheyne Shattuck, so named because of his father's admiration for Dr. George Cheyne, received the degree of A.B. and M.B. at Dartmouth College, and of M.D. at the University of Pennsylvania in 1807, and later practised in Boston, becoming a leading physician of his time. His only son, also George Cheyne Shattuck, was deeply interested in educational matters, and founded St. Paul's School at Concord, N. H., giving his country estate for this purpose. A school in Faribault, Minnesota, was named for him, in recognition of a generous gift toward its foundation. He was also, for a time, dean of the Harvard Medical School, Hersey Professor of the Theory and Practice of Physic, and president of the Massachusetts Medical Society, as was his father before him. The younger generation of medical men is represented by George Cheever Shattuck, Assistant Professor of Tropical Medicine at the Harvard Medical School, a son of

Frederick Cheever Shattuck, and a nephew of George Brune Shattuck.

When St. Paul's School was opened in 1856, it had three pupils, all of whom later became physicians. These were, George B. Shattuck, the subject of this notice; his brother, Frederick C. Shattuck, Jackson Professor of Clinical Medicine, Emeritus, at the Harvard Medical School, and Horatio R. Bigelow. On leaving St. Paul's, Dr. Shattuck entered St. James College at Hagerstown, Maryland, and in 1861 transferred to Harvard, where he took his bachelor's degree in 1863, his master's degree in 1867 and his medical degree in 1869. Some time after his graduation he married, in Paris, Mrs. Amalia (Schutte) Lavalley, whom he survived by several years. Before graduating in medicine he had contracted malaria, while traveling in Italy and, with the late Dr. Charles F. Folsom as a fellow-passenger, made a voyage of 153 days in a sailing ship around Cape Horn in search of health. On his return to Boston he was elected a surgical house-officer at the City Hospital, but his taste was not for surgery, and in 1878 he was made a visiting physician to out-patients at the same hospital, to which he was thereafter loyally attached for the remainder of his life. He was appointed a visiting physician in 1881 and served in this capacity up to the retiring age of 64, when he became senior physician, an office which he held at the time of his death. He also served on the executive committee of the staff from 1903 to 1914 inclusive.

During his long period of service as visiting physician he established an enviable reputation for skill in diagnosis, kindness to his patients, and a rare capacity for perceiving essentials. He was not given to hair-splitting, nor was he carried away by the wave of enthusiasm for laboratory methods of diagnosis then coming into vogue. He was always judicial and possibly over-conservative. His common sense, an increasingly rare attribute of the modern doctor, never deserted him. To his house-officers and to others who served under him, he stood on a pedestal, not of his, but of their making. Many are the delightful stories of his hospital visits. He was a stickler for formality and conducted his progress through the wards after a manner entirely his own. The senior house-officer was at his elbow, the junior invariably carried the record books, however many they might be, and the others followed in proper order. He was never garrulous; his words were carefully chosen; his comments were trenchant and discriminating, tempered always by a pervasive humor. His admonitions were none the less effective on this account, and what otherwise might at times have been dreary rounds were enlivened by his kindly wit. On one occasion, after reading a patient's record, he looked up and seriously asked the house-officer whether the patient had vomited twice, to which the house-officer replied, "Yes, sir." "I suppose, there-

fore," said Dr. Shattuck, "that if he had vomited three times you would have spelled it with three t's."

Throughout his active medical life he was, like many others of that period, particularly interested in typhoid fever—a disease which he lived to see disappear as a public menace. He wrote several papers alone and in collaboration with others on this subject. His interest, however, in medical practice was never sufficient to absorb all his energy and time. For many years preceding his death he saw few patients and became more and more identified with affairs which had little to do with the actual practice of his profession. No doubt he was wise in this course; his usefulness to the community was thereby greatly enhanced, but those who knew him best felt at times a certain regret that his rare wisdom and judgment might not have been more widely used for the benefit of the individual sufferer. The qualities, however, which would have made him a great consultant and practitioner, found scope in the many positions of trust and responsibility which he held almost to the end of his life.

He was for a short time an instructor in clinical medicine at the Harvard Medical School, but teaching did not appeal to him and he soon gave up this position. He was president of the board of managers of the Massachusetts Charitable Eye and Ear Infirmary from 1902 to 1918, and of the Boston Medical Library from 1906 to 1919, succeeding in the latter post Dr. David W. Cheever. He was, very appropriately, the first Shattuck Lecturer of the Massachusetts Medical Society, and its president from 1910 to 1912. He served for several terms, in all twenty-one years, as an overseer of Harvard College, and was a leader in the contest for the extension of the suffrage for overseers to all graduates of the university. In spite of his efforts he was for the time defeated, but the measure was later passed during the term of his brother as overseer. He was a director of the Boston Athenaeum, president of the Massachusetts Medical Benevolent Society from 1909 to 1921, a trustee of the Massachusetts Humane Society and a charter member of the Association of American Physicians. From 1879 until his resignation in 1912 he had editorial charge of the *Boston Medical and Surgical Journal*, to which he devoted a large share of his time and thought during his long incumbency of thirty-three years.

The first Shattuck Lecture before the Massachusetts Medical Society was delivered June 19, 1890. The subject was "Influenza in Massachusetts," a timely topic, since the great epidemic of that period was then at its height. It was presented in a most painstaking and judicial manner, but the conclusions reached were naturally indefinite and inconclusive, yet hardly more so than those regarding the recent visitation of the same disease despite the development

of sci-
years.
to this
charm
father
the o
speaks
tuck,
disease
Count
so ad
medic
of Dr.
certain
Shattu
his da
remed
it nee
patien
had in
and u
interf
blood
antago
wheth
orous
unjust
part c
strong
see na
from
led us
duty
the cl
time.
which
two h
early
the ge
mind
good
erring
medic
But t
place
the al
as of
stone.
stirs
but, i
that
much
durin
imme
It v
drugs
that
logica
and th
a trib
medic
by dr
Amon
Shatt

of scientific method during the intervening thirty years. Of particular interest is the introduction to this lecture, in which Dr. Shattuck gives a charming impersonal account of his great-grandfather, and especially of his grandfather, and the origin of the Shattuck Lectureship. He speaks of his great-grandfather, Benjamin Shattuck, as carrying on a "guerilla warfare with disease over the hills and valleys of Worcester County," and of his grandfather in language so admirably descriptive of the man and the medicine of that period, and also so illustrative of Dr. Shattuck's style at its best that I quote certain passages somewhat *in extenso*. "Dr. Shattuck shared to some extent the tendency of his day to polypharmacy; he did not eschew remedies of large bulk, he did not always think it necessary to stoop to tickle the palates of his patients, he had confidence in medicines, as he had in other methods of interfering with disease, and used them with courage when he thought interference necessary." . . . "It was in the blood to be up and doing, to wrestle with some antagonist and to strive to prevail over him; whether the antagonist took the form of a vigorous climate, of depravity of the spirit, of unjust taxation or of weakness or error on the part of the flesh. It was just possible for the strong men of that generation to sit down and see nature lead, but not to restrain themselves from pursuing and taking hold of her when she led us, it seemed to them, astray. It was their duty to *smite* the Philistine, not to leave him to the chances of the slow corrective influence of time. The self-determining power of the will, which had accomplished much in the preceding two hundred years, had not abdicated in the early part of this century, nor yet had it adopted the gentle disguises of Christian Science, of the mind cure or of hypnotism. Bad medicine was good for disease, as self-torture was good for the erring. We take both our religion and our medicine more comfortably and less seriously. But then he who took a distasteful remedy had placed his comfort as a precious sacrifice upon the altar of health. The nose of the patient, as of everyone else, must be kept to the grindstone." . . . "It is true that civil commotion stirs up thought and quickens mental activity; but, in spite of this, I am constrained to believe that the remote influence of Calvin had quite as much to do with the best of medical practice during the first half of this century, as had the immediate teaching and example of Rush."

It was this man who, in spite of the fact that drugs loomed large on the medical horizon of that time, endowed a professorship of pathological anatomy rather than of materia medica and therapeutics at the Harvard Medical School, a tribute to his appreciation of the hard road medicine was destined to travel before treatment by drugs would again come into its heritage. Among the many bequests of George Cheyne Shattuck was one of approximately \$10,000 to

the Massachusetts Medical Society, which, after some vicissitudes, was finally used to endow a lectureship, to be known as the Shattuck Lecture. This annual lecture, inaugurated by Dr. George B. Shattuck, has been continued uninterruptedly since 1890.

Dr. Shattuck's active efforts in behalf of the Massachusetts Medical Society began in 1885, when, as chairman of the legislative committee on the State Board of Health, Lunacy and Charity, he was instrumental in the establishment of a separate and independent board of health, the first in this country. In 1894 he organized the first committee on State and National Legislation, which has since rendered valuable service in the cause of medical measures of public import. During his presidency of the society he was, by virtue of his office, chairman of the committee which he had been instrumental in forming in 1894. It was also during his incumbency that the annual dinner was given in the evening, as it has been since, instead of in the afternoon, much to the advantage of the post-prandial exercises, which had previously suffered rather seriously from the counter-attraction of baseball and other open air diversions.

The most absorbing interest of his life was undoubtedly the BOSTON MEDICAL AND SURGICAL JOURNAL. As already stated, he was its editor from 1879 to 1912, and during these years of vicissitude and trial, with difficulties and problems on every hand, he steered the ship with skill and courage, and with undeviating faith that somehow it would survive the storms. He took pride in its honorable past and believed implicitly in its future. Loyal as he was to the Massachusetts Medical Society, it was a keen disappointment to him that the JOURNAL was unable to maintain its complete independence. That conditions arose which demanded, if it were to survive, that it be taken over by the State society, he accepted as inevitable, but regretfully. It was hard for him to reconcile himself to the changing conditions of medical journalism, the increasing rivalry of other similar journals, the advent of numberless special periodicals, and above all, the lack of adherence among the younger members of the profession to a respected "institution," which epitomized the medical history and medical achievements of New England. All this he took very seriously, but without complaint or open criticism.

During his long service as editor he was associated with many men, at first his contemporaries, and later younger men, who felt or were made to feel that they had the requisite capacity for such literary work. He was tolerant of their stumbling efforts, read their manuscripts with patience and forbearance, and offered suggestions in a spirit which could by no possibility ruffle the feelings of the most sensitive writer. Objecting very correctly on one

occasion to the use of the phrase, "it goes without saying," he gently remarked, "but, after all, that is a French idiom; it is not really good English," a hint which has not been unheeded since. Those who had the good fortune to be associated with him as sub-editors cherish the delightful experiences of their lives, certainly memory as one of the unique and altogether far removed from the humdrum routine of medical practice. In the nineties the "JOURNAL Office" was in the historic Damrell and Upham Building, the ground floor occupied by The Old Corner Book Store. It was reached by two flights of exceedingly rickety stairs and a long hallway. The office itself, a designation hardly suitable for a room perhaps five feet broad and twelve in depth, lighted by a single grimy window, through which light percolated with most indifferent success, was provided with desks and chairs of uncertain design; the walls were covered with prints of varied character; some shelves of doubtful stability were filled to overflowing with books and "exchanges," and dust was everywhere. This was before the days of typists; women rarely penetrated the "sanctum," and if by chance one did, she was not, it is rumored, edified. It was here that Dr. Shattuck came day after day and year after year with a regularity and punctiliousness which was a constant reproach to his subordinates. He would sit often without speaking for long periods of time and write slowly and somewhat laboriously in his clear orthography, the necessary notes or editorials for the "printer." He enjoyed people always, and it was a great satisfaction to him to have Dr. Henry P. Walcott, Dr. Abner Post or some other valued friend come to the office at the noon hour for a friendly talk, often on matters of public concern, but never so serious as to preclude the delightful interplay of humor which was really a part of the man. To the assistant editor these were also occasions of peculiar though inarticulate enjoyment. When the office was moved to more sumptuous quarters, and finally into a modern office building, provided with a secretary and the accessories of progressive business methods, the quaint charm of the old régime was gone, but through all the development, if such it was, Dr. Shattuck remained the same unperturbed and kindly companion, incapable of being outwardly affected by the material changes about him. He left the JOURNAL some years before the final crisis in its affairs came, but though not taking any part in the ultimate deliberations, which led to the change of policy, he followed its vicissitudes with unflinching interest. Few, outside those directly associated with him, can realize the extent of his self-sacrificing devotion to its interests in the many years of unrewarded and at times unappreciated work of his editorship. On the occasion of the original affiliation with the Massachusetts Medical So-

ciety, the editor writes: "For thirty years Dr. Shattuck served the Medical Community without other thought than maintaining the JOURNAL as a medium of progressive medical thought, according to the traditions of its past."

He was endowed with a rare capacity for literary expression, through which ran a vein of subtle humor, rendering his writing as it did his conversation, altogether charming. In spite of this capacity, he has left few products of his pen. The regret is deeper from the fact that from those we have, we may conjecture what might have been, had he devoted himself more assiduously to the expression of thoughts always so near the surface. He was essentially a modest man, slow and deliberate of speech, reserved in manner, concealing beneath a peculiarly calm exterior a sensitiveness of spirit which was one of his most winning attributes. One of his friends has said of him that "he was the proudest man he ever knew," a characterization which perhaps best described a combination of qualities, difficult to express in more elaborate form. He did not seek personal aggrandizement, but always took the keenest pleasure in what success or distinction might come to his friends. He was particularly interested in younger men, and in an undemonstrative way expressed his satisfaction when any good fortune befell those whom he had adopted into his chosen circle. His kindness and sympathy will not soon be forgotten by those who came under its influence. His enjoyment of life and the good things it contained was spontaneous and sincere. He was a delightful host and an appreciative guest. He never usurped the conversation; in fact, he was not a conversationalist in the ordinary use of the term. His alertness of mind was shown rather in a remarkable capacity for repartee and an incomparable ability to see and put in apt words the humor of a situation. He was not controversial. His opinions were definite, but they rarely found expression in argument, and his temper was seldom ruffled, so far as one could observe from external appearances. For many years preceding his final illness he spent his summers at Dark Harbor, Maine, his house facing the water and close to the golf course, where he was accustomed to take his exercise. He also at one time directed the policies of this golf club, as its presiding officer. He was equally at home and equally sought whether as president of a golf club or of a medical society, and to each he brought the same judgment, tact and good-fellowship.

The affection in which he was held by his large family circle was shared in almost equal degree by all who claimed him merely as a friend. When such men die there are none to take their places.

E. W. T.

A NEW MEDICAL ERA IN CHINA.

As far back as 1908 the needs of the Far East had attracted the attention of Mr. Rockefeller to such an extent that a commission was sent out composed of Dr. Ernest D. Burton and Dr. Thomas C. Chamberlin of the University of Chicago, to study the educational situation in China, Japan, and India. This commission recommended the establishment of an educational institution for the teaching of the natural sciences at Peking. Later it was proposed to limit this development to the branch of medical science only, and in 1914 a second commission was sent to China alone. This group, headed by President Harry Pratt Judson of the University of Chicago, consisted of President Judson, Dr. Francis W. Peabody of the Harvard Medical School and Mr. Roger S. Greene, then Consul General at Hankow, later appointed Resident Director of the China Medical Board. A program was outlined for aiding medical schools and hospitals.

The next step was the formation of the China Medical Board as a branch of the Rockefeller Foundation. The third commission was sent out in the summer of 1915, and was composed of Dr. William H. Welch of the Johns Hopkins Medical School, Dr. Simon Flexner of the Rockefeller Institute for Medical Research, Dr. Wallace Buttrick, Secretary of the General Education Board, and Dr. Frederick L. Gates of the Rockefeller Institute. The decision was reached to cooperate with the Peking Union Medical College, taking over their land and buildings on the basis of original cost, and providing the maintenance and new construction costs.

The purpose of the China Medical Board, as stated in the report of the dedication ceremonies, "is to cooperate with other agencies in the gradual development of a system of scientific medicine in China." The initiation of direct activities in hygiene and preventive medicine by the Rockefeller Foundation, work which first engaged the main efforts of the Foundation, has been deferred for several reasons, chief among them being the disorganized political conditions prevailing in China, and the fact that the people have not as yet sufficient confidence in scientific medicine to insure the necessary cooperation.

The problem, therefore, of medical education demanded first attention, and the following lines of activity presented themselves:

1. Pre-medical education, through strengthening of science courses in colleges.
2. Medical Education:
 - a. Undergraduate courses.
 - b. Training of investigators, teachers, and clinical specialists through prolonged graduate courses and through practical work under proper guidance.
 - c. Stimulating of private practitioners and

missionary doctors, both foreign and Chinese, by short graduate courses.

3. Medical research, especially with reference to problems of the Far East.

4. Improvement of hospitals as training centers for interns and nurses, as models for imitation, as indispensable adjuncts to the practicing physician, and as a means of popular education.

5. Diffusion among the Chinese people of a knowledge of modern medicine and public health.

6. Fostering of professional ethics through the development of character and ideals of service.

The work of the China Medical Board has been the reorganization of the Peking Union Medical College, including the gathering of a staff of teachers, nurses, and administrative officers, partly from the United States, Canada, and Great Britain, partly from those experienced in medical missionary work in China, and now in increasing numbers from well-trained Chinese, until, in 1921, the staff included 15 pre-medical teachers, 57 teachers in the Medical School, 31 nurses, and 48 administrative and technical officers. New medical school buildings and a 250-bed hospital had just been completed at the time of the report in 1921. A Pre-Medical School with a three-year course has been established and direct grants have also been made for the advancement of scientific teaching to St. John's University, Fokien Christian University, Canton Christian College, and Yale-in-China.

The Medical School proper was opened in 1919 with 13 students in the first and second-year classes. The higher class began its clinical studies in the fall of 1921. The Nurses' Training School is a most important branch of the work. Among its other good works, the China Medical Board has assisted in the preparation of an official terminology for the medical and pre-medical sciences, and in the work of producing a medical literature in China.

In 1861 William Lockhart of the London Missionary Society arrived in Peking and opened a small dispensary and out-patient clinic near the British Legation. This marked the commencement of medical missionary work in Peking. The work slowly progressed under him and later Dr. Dudgeon until all the buildings were destroyed at the time of the Boxer rising. In 1906 the London Missionary Society was joined by two and later three other societies in the founding of a union school. The first class was graduated in 1911. The College was early recognized by the Chinese Government, the first teaching being in Chinese, and was slowly progressing when in 1914 the Rockefeller Foundation sent its commission to China. The result, as we have seen, was the purchase of the entire plant by the China Medical Board, and its complete reorganization under its present charter

from the Regents of the University of the State of New York.

The buildings, which have been made to harmonize with the great architectural monuments of Peking, with curved roofs of green tile, conventional decorations of the eaves with colors, etc., consist of an Auditorium, Anatomy Building, Chemistry Building, Physiology and Pharmacology Building, Private Patients' Building, Administration Building, Surgical Ward Building, Medical Ward Building, Pathology Building, Out-Patient Building, Admittance Building, Nurses' Home, Power House, and Animal House. Lockhart Hall houses the pre-medical departments and there are men's and women's dormitories and 36 residences for members of the staff. The total area developed is 22.6 acres.

The Medical Conference began on Thursday, September 15, 1921, and lasted until Thursday, September 22. The Dedication Ceremonies were held in the afternoon of September 19. Delegates were present from many institutions, including Dr. George E. de Schweinitz, representing the American Medical Association, and Dr. Francis Weld Peabody, representing Harvard University.

The history of Peking Union Medical College and the China Medical Board, with addresses and papers read at the Dedication Exercises and the Medical Conference, and many illustrations are contained in the Dedication Volume published by the Trustees and Faculty of the College.

DR. OSCAR M. SCHLOSS RESIGNS.

DR. SCHLOSS has been induced to leave Boston and the Children's Hospital to occupy the position of Professor of Pediatrics in the Cornell University Medical School and to take charge of the New York Nursery and Child's Hospital, 161 West Sixty-first Street, New York City. This institution was established in 1854. In 1921 there were 321 beds in this hospital, and, in addition to a maternity department, an out-patient service is maintained.

No appointment has been made to fill the vacancy caused by Dr. Schloss' retirement.

During the two years that Dr. Schloss has been in Boston great changes have been brought about. One of the most important is a closer cooperation between the Children's Hospital and the Infants' Hospital. Although each institution maintains its corporate identity, there is now a practical union in staff and executive management. Within a few weeks the new building of the Infants' Hospital, built in close connection with the wards of the Children's Hospital, will be opened.

The new laboratories of the Children's Hospital have been built and are in full operation. The resident system has been greatly extended in both hospitals.

Close coöperation in the teaching of pediatrics has been established between the Boston City Hospital and the Children's Hospital.

It is a source of profound regret that Dr. Schloss is not to enjoy the fruits of the work he has already done and that his guidance is no longer possible. The high regard in which he is held is indicated by his election to the presidency of the New England Pediatric Society. His many friends in Boston, sorry as they are to lose him, wish him well in his return to New York.

Miscellany.

THE MASSACHUSETTS PUBLIC HEALTH CONFERENCE.

THE coöperative action of sixteen organizations in this State, all interested in public health affairs, and most of them devoted to special fields, brought about a most important conference in Springfield, Mass., occupying practically three full days of April 26, 27, and 28, 1923. The officers of this conference are: General Chairman, Eugene R. Kelley, M.D.; General Secretary, Robert V. Spencer; Chairman on Local Arrangements, Harold E. Miner, M.D., Springfield; Chairman on Exhibits, Frederic Edwards, 145 State Street, Springfield; Publicity Chairman, George K. Pratt, 5 Joy Street, Boston. The Vice-Chairmen representing the participating organizations are John D. Adams, M.D., Merrill E. Champion, M.D., Harold DeWitt Cross, D.M.D., Mrs. William Freiday, Carrie M. Hall, R.N., Annie Lee Hamilton, M.D., Burton Hess, Katherine McMahon, Harold E. Miner, M.D., Edward O. Otis, M.D., George K. Pratt, M.D., Mrs. Sumner H. Remick, William H. Robey, M.D., Channing C. Simmons, M.D., George Francis Curtis, M.D., especial credit being due to Robert V. Spencer for his efforts in securing interest and arranging details.

The exercises began at 11.30 a.m., after registration at the Auditorium, the next in order being the annual meeting of the Massachusetts Tuberculosis League. President Otis read his annual report, presenting a historical review of many matters relating to tuberculosis, and expressing satisfaction with the progress made and hope for continued advance in the future.

The Secretary, R. V. Spencer, read his report as Secretary, followed by reports of the Field Secretary, R. W. Vining, and Anna V. Johnson, Educational Secretary.

The election of officers was next in order. The following named persons were declared elected:

President, Edward O. Otis, M.D., Boston; Vice-President, Parker M. Cort, M.D., Springfield; Honorary Vice-Presidents, Major-General Clarence R. Edwards, Westwood; Eugene R. Kelley, M.D., Boston; Cardinal O'Connell, Boston; Treasurer, Arthur Drinkwater, Cambridge;

Assistant Treasurer, Romney Spring, Boston;
Clerk, Robert V. Spencer, Newton.

Executive Committee: Vincent Y. Bowditch, M.D., Boston (to serve for one year); Francis P. Denny, M.D., Brookline (to serve for one year); Louisa P. Loring, Beverly (to serve for two years); Hon. John F. Fitzgerald, Boston (to serve for two years); Rev. Walter F. Greenman, Greenfield (to serve for three years); Sumner H. Remick, M.D., Reading (to serve for three years).

Directors at Large: Joseph Parks, Fall River; Rabbi Harry Levi, Boston; Mrs. Edward C. Mason, Winchester; Francis G. Curtis, M.D., Newton; Henry D. Chadwick, M.D., Westfield; Mrs. Sumner H. Remick, Reading; Walter P. Bowers, M.D., Clinton; Murray P. Horwood, Ph.D., Newton; Maynard Ladd, M.D., Boston; John B. Hawes, 2nd, M.D., Boston; Harry C. Low, M.D., Brookline; Sumner H. Remick, M.D., Reading; Francis P. Denny, M.D., Brookline; Louisa P. Loring, Beverly; Vincent Y. Bowditch, M.D., Boston; Rev. Walter F. Greenman, Greenfield; Arthur K. Stone, M.D., Framingham; William B. Geoghegan, New Bedford; Samuel B. Woodward, M.D., Worcester; A. L. Stone, M.D., Pittsfield; Fred H. Allen, M.D., Holyoke; Hon. John F. Fitzgerald, Boston; Edward O. Otis, M.D., Boston; Parker M. Cort, M.D., Springfield; Arthur Drinkwater, Cambridge.

REPRESENTATIVE DIRECTORS.

Public Health Association of Barnstable County: Miss Mary Mortimer.

Berkshire Tuberculosis Association: Dr. Robert J. Carpenter, Francis A. Bagnall.

Boston Tuberculosis Association: Miss Elsie Freedman, George S. Hill, M.D., Mrs. Reginald Heber White, Miss Julia C. Prendergast, Mrs. Myles Standish, Mrs. W. H. Rideing.

Brockton Tuberculosis League: Mrs. J. Frank Coffey.

Bristol County Public Health Association: Jesse M. Battershall, M.D.

Cambridge Anti-Tuberculosis Association: Mrs. Charles P. Vosburgh, Mrs. Mabel Greeley Smith.

Chelsea Women's Public Safety Committee: Mrs. E. Frank Guild.

Everett Tuberculosis League: Mrs. George A. Brown.

Fall River Anti-Tuberculosis Society: John H. Lindsey, M.D.

Franklin County Public Health Association: Rev. Walter F. Greenman.

Gardner Association for the Relief and Control of Tuberculosis: Mrs. George B. Underwood.

Gloucester Anti-Tuberculosis Association: Elmer W. Babson, D.V.M.

Hampden County Tuberculosis and Public Health Association: Walter S. Barr, Clifton H. Hobson.

Hampshire County Public Health Association: William E. Shannon.

Lowell Tuberculosis Council: Mrs. Tyler A. Stevens.

Lynn Tuberculosis League: Mrs. Carolyn M. Engler.

Malden Anti-Tuberculosis Society: Mrs. J. Gy. Green.

New Bedford Anti-Tuberculosis Association: John M. Wise, M.D.

Newburyport Anti-Tuberculosis Association: Mrs. Florence Gould Hale.

Newton Welfare Bureau: Arthur Kendrick.

Norfolk County Public Health Association: Dean Luce, M.D., Mrs. William C. Rogers, Miss Annie R. Townsend.

Northern Essex Public Health Association: I. J. Clarke, M.D., Elmer S. Bagnall, M.D.

Salem Association for the Prevention of Tuberculosis: J. Frank Donaldson, M.D.

Somerville Visiting Nurse Association: Mrs. E. H. Kyle.

Southern Worcester County Health Association: Kendall Emerson, M.D., Rev. J. L. McGilliuddy.

Public Health Association of Southwestern Middlesex County: Mrs. H. E. Warren.

Waltham Visiting Nurse Association: Mrs. Hollis E. Dennen.

At 1 p.m., a joint luncheon meeting, consisting of the Massachusetts Tuberculosis League, the Massachusetts Association of Boards of Health and the Public Health Committee of the Massachusetts Medical Society was held in Highland Hotel presided over by Dr. John W. Bartol, President of the Massachusetts Medical Society. Dr. Remick was to open the discussion but was ill at home. The various problems relating to the Tuberculosis Dispensary and correlated clinics were presented by Drs. Chadwick, Henderson, Drury, O'Donnell, Kent, Curtis, Simpson, and several nurses of the Department of Public Health.

The Red Cross and the Federation of Women's Clubs also had luncheon meetings, and the Connecticut Valley Committee of Mental Hygiene met at 3 p.m.

In the evening there was a general meeting, presided over by Dr. Eugene R. Kelley, at which representatives of the prominent health organizations spoke.

On Friday meetings began at 8 a.m. and continued until late in the evening. The subjects considered by the different organizations covered Rural Health Work, Social Hygiene and Public Health, Public Health Dentistry, Mental Hygiene, Nursing Education, and Health Work through Schools.

At the Friday evening meeting Dr. Eugene R. Kelley, State Commissioner of Public Health, was most happy in his introduction of Dr. Allan J. McLaughlin, Assistant Surgeon-General, U. S. Public Health Service. Dr. McLaughlin said that in 1902 one could not imagine such a union

of voluntary health agencies and state organizations such as exists today in Massachusetts. He then told how the policeman type of health officer originated, declaring that in 1898 he himself was in that class. Dr. McLaughlin praised Boston's fifty-one organizations for health work, stating that the unofficial agency began certain work and then turned it over to the state society. If there was overlapping in this duplication, what harm was done?

The former State Commissioner of Public Health for Massachusetts then gave a brief outline of the growth of public health measures from inoculation in India 500 B.C., the sanitary measures of the old Mosaic law, the Roman sanitary laws, etc., to the time of Pasteur's discovery in 1870, and the wonderful health organizations of the present day.

Dr. Kelley then introduced Dr. C.-E. A. Winslow, Professor of Public Health at Yale Medical College, who described briefly the "Ideal City," which should have perfect sanitation, a pure water supply, and proper disposal of garbage. In this Ideal City effective control of disease would be obtained by universal vaccination, and Schick tests would be compulsory. Infant welfare and maternity work would be thoroughly carried out. School children would be examined regularly, tuberculosis clinics would be managed by skilled men, and workers would receive a living wage.

Saturday a.m., Dr. Mary Schwartz Rose, Assistant Professor, Department of Nutrition, Columbia University, spoke on "Meeting the Problem of the Delicate Child." Dr. Rose gave a most interesting talk on this subject, with illustrations of her experiments on feeding rats. From her regular examination of undernourished children in a public school she found malnutrition one of the chief conditions to be remedied. She advised trained people to instruct not only poor mothers, but those who were well to do, on how to feed these delicate children. She criticized the attitude of doctors in these cases if they were not interested in public health. Teachers were most appreciative, as physical improvement was followed by increased mental activity.

Dr. Harold de Witt Cross, Director Forsyth Dental Infirmary, was the next speaker.

Dr. Cross thinks public health dentistry must go back to prenatal state, giving instruction in diet then and during the first few years of childhood. At present there is much talk about effect of diseased teeth on the body; there should be more discussion of the effect of the diseased body on the teeth. Dental work should be given to children under six, because more good will be accomplished.

"The Traveling Dental Clinic," Fred D. Griggs, Secretary. Mrs. Storrow helped to start this work, and she criticized so much care of animals and less of children. Fourteen towns have had the Traveling Dental Clinic for four and

one-half years for children. Dentists trained to work with children have been sent to these clinics.

"Health Habit Formation." Mr. Charles de Forest gave an interesting description of the Modern Health Crusade. One hundred and fifty thousand Massachusetts children have done the "health chores," which include two baths a week.

Taken as a whole, this convention stands out as one of the notable assemblies of the year. The quality of the addresses and discussions was of a high order. There were about 350 persons in attendance at the various exercises.

The only disappointment was that comparatively few physicians found time to attend. Those who were present were well repaid for the effort made. Perhaps the great value of such meetings may be in the stimulating effect resulting from interchange of opinions among the public health workers.

It may be too much to expect that busy practicing physicians will devote time to attending conferences of this character, but much of the information given by the speakers could be assimilated to advantage, and would add to the general knowledge and efficiency of physicians. Seeing the workers and hearing the guiding minds in public health work brings about confidence and coöperation.

WORCESTER DISTRICT MEDICAL SOCIETY.

The annual meeting was held at the Tatnuck Club, Worcester, May 9, 1923. After the reading of the reports the following officers for 1923-1924 were elected:

President, Dr. Arthur W. Marsh, Worcester; vice-president, Dr. L. R. Bragg, Webster; treasurer, Dr. George O. Ward, Worcester; secretary, Dr. A. W. Atwood, Worcester; orator, Dr. R. P. Watkins, Worcester.

Committee on Funds: Dr. Homer Gage, Worcester; Dr. David Harrower, Worcester; Dr. Itay W. Greene, Worcester.

Commissioner of Trials: Dr. Walter P. Bowers, Clinton.

Councillors*: Dr. F. H. Baker, Worcester, term began 1914; Dr. L. R. Bragg, Webster, 1922; Dr. W. J. Delahanty, Worcester, 1913; Dr. G. A. Dix, Worcester, 1921; Dr. G. E. Emery, Worcester, 1920; Dr. M. F. Fallon, Worcester, 1916; Dr. Homer Gage, Worcester, 1906; Dr. J. J. Goodwin, Clinton, 1921; Dr. R. W. Greene, Worcester, 1907; Dr. David Harrower, Worcester, 1905; Dr. E. L. Hunt, Worcester, 1918; Dr. A. G. Hurd, Millbury, 1916; Dr. A. W. Marsh, Worcester, 1922; Dr. L. C. Miller, Worcester, 1921; Dr. C. B. Stevens, Worcester, 1920; Dr. G. O. Ward, Worcester, 1915; Dr. F. H. Washburn, Holden, 1916.

Councillor on Nominations: Dr. David Harrower, Worcester; Dr. George O. Ward, Worcester, alternate.

*Ex-presidents of the state society are also members of the Council. Worcester District has two living ex-presidents: Dr. S. B. Woodward and Dr. W. P. Bowers.

†Continuous except 1915-1916.

Censors: Dr. F. H. Washburn, Holden, supervisor; Dr. C. A. Sparrow, Worcester; Dr. E. H. Trowbridge, Worcester; Dr. J. J. Cummings, Worcester; Dr. L. C. Miller, Worcester.

Nominating Committee: Dr. R. J. Ward, Worcester; Dr. Merriek Lincoln, Worcester; Dr. J. C. Austin, Spencer; Dr. A. M. Shattuck, Worcester; Dr. S. A. Bergin, Worcester.

Librarian: Dr. A. C. Getchell, Worcester.

Library Committee: Dr. William F. Lynch, Worcester; Dr. O. H. Stansfield, Worcester; Dr. William F. Holzer, Worcester.

Auditing Committee: Dr. E. R. Leib, Worcester; Dr. Kathryn Voorhis, Worcester; Dr. J. W. Cahill, Worcester.

The dinner was served at 7 o'clock. Following the dinner the annual oration was delivered by Albert Gordon Hurd, M.D., of Millbury. The title of this address was "Can You Beat It?" The speaker called attention to the great number of accidental deaths in this country, and called attention especially to the fatalities and injuries due to the operation of motor vehicles. He recommended intensive education of children, for the ignorance and carelessness of childhood are large contributing factors in the causes of accidents.

Subsequent to the oration the president of the Massachusetts Medical Society gave a résumé of the work accomplished by the legislative and other committees of the state society, and spoke hopefully of the future, for it is becoming evident that physicians are treated with courtesy by legislative committees and advice submitted is given careful consideration.

He called attention to the prospective publication of a history of the Massachusetts Medical Society by its Secretary, Dr. Walter L. Burrage, who has been at work for years putting the facts into proper form, and paid a graceful tribute to the invaluable service rendered by Dr. Burrage through many years. He earnestly recommended that every member of the Society should purchase the history because of its intrinsic value as well as for the entertainment which will be derived from its perusal.

Dr. Kendall Emerson called attention to the meetings of the New England Division of the American College of Surgeons soon to follow, and extended a cordial invitation to the members of the Worcester District Society.

The editor of the BOSTON MEDICAL AND SURGICAL JOURNAL spoke briefly on the affairs of the JOURNAL.

Dr. Marsh was duly presented by the retiring president, and he spoke of the desirability of continuing instruction of the public by means of open meetings to be devoted to matters suitable for lay consideration. He stated that the program for meetings of the year would be distributed in September.

THE SPRINGFIELD ACADEMY OF MEDICINE.

THE last 1923 spring meeting of the Springfield Academy of Medicine was held Tuesday, May 8, 1923, at 137½ State Street, at 8.30 p.m.

Dr. Oswald S. Lowsley of New York read the paper of the evening, on "Perineal Prostatectomy." The discussion was opened by Drs. Wilder and Kilburn. Dr. Lowsley, who is chief of the Brady Foundation Urological Division at New York Hospital, told the way they work up their urological cases on his service, including blood chemistry observations. He also reported his results with sacral and parasacral anesthesia for prostatectomy. A large number were in attendance.

Luncheon was served after the meeting.

Officers and committees for 1923-24:

President, John M. Birnie; First Vice-President, Harry F. Byrnes; Second Vice-President, R. S. Benner; Secretary, James A. Seaman; Treasurer, Ira N. Kilburn.

Board of Directors: Philip Kilroy, T. G. Alcorn, E. A. Bates, R. B. Ober, T. S. Bacon, G. D. Weston, L. D. Chapin, E. L. Davis, Seth Lewis, J. M. Tracy.

Board of Censors: F. D. Jones, F. K. Dutton, C. A. Schillander, F. C. Hagler, R. A. Roehford.

House Committee: H. W. Van Allen, George Coreoran, H. F. Buddington.

Registry Committee: F. K. Dutton, Seth Lewis, H. R. Wheat.

Library Committee: A. C. Eastman, E. H. Judd, H. C. Martin.

Legislative Committee: Philip Kilroy, H. W. Van Allen, H. L. Smith.

JAMES A. SEAMAN, *Secretary*.

ROCKEFELLER FOUNDATION AIDS GERMAN SCIENCE.

THE gift of the Foundation for scholarships and fellowships in Germany, according to Dr. A. E. Taylor, of Leland Stanford University, who has recently returned from Europe, is the most important constructive assistance given Germany since the war. It will, he believes, have the double effect of aiding medicine and strengthening the influence of liberalism throughout the country. According to present plans it is probable that one hundred fellowships will be in active force by the first of February and one hundred more will be granted during the course of the next six months.

The number of students entering medical schools in Germany has diminished to about one-fourth of the pre-war number. There are still plenty of young men desirous of doing research and special work, but current supplies—animals, instruments, chemicals, and so forth—are prohibitive in price.—New York Health News.

REGISTRATION OF PHYSICIANS.

THE total number of physicians registered in the United States during 1922 is 5497. Of this number 244 were registered in Massachusetts. Only four states exceeded this number. These four states are New York, Illinois, Pennsylvania and Ohio.

Of the 244 new practitioners in Massachusetts 2 are from Class B schools, 51 from Class C schools and 13 are from so-called nondescript schools, that is, over 27 per cent. of the registrants are from schools that have little or no premedical educational requirements and very little guarantee of recognized professional teaching. The great majority of such men have different standards at the time of entering practice. Among these doctors, experience may develop ambition to make the practice of medicine more than a business, but the proportion of those who will be helpful in public health problems is likely to be small. From these graduates of low-grade schools will come some of the objectors to better laws relating to medical education if history repeats itself. It is to be hoped that many of them will develop into safe practitioners, but it is fair to assume that years of study will be necessary to enable the poorly trained doctor to attain the average of usefulness found in the other group of 178 physicians who are graduates of Class A schools.

If people would investigate the educational experience of young physicians before employing them, the elimination of the Class C schools would be promoted.

MEASLES AND DRUG RASH.

In the *Bulletin of The Department of Health*, New York City, for April 28, 1923, reference is made to the difficulty of making a diagnosis of measles when an adult has exhibited a rash and has taken phenacetin.

Although the representative of the Health Department referred to the rash as "measly," measles was excluded after two examinations for the following reasons: "1. The patient had had measles before. Second attacks, especially at 45 years of age, are exceedingly rare. 2. The rash did not involve the face, in the confluent and unmistakable manner characteristic of measles. A typical appearance and evolution of the rash is extremely rare in sthenic adults. 3. The mucous membranes of the eyes, nose, mouth, and pharynx were not involved. The spots on the insides of the cheeks were ruptured vesicles and not Koplik's spots. The presence of Koplik's spots implies a congested and reddened mucosa. 4. Acetanilid and kindred drugs (phenacetin) are known to cause, in rare instances, morbilliform rashes similar in type to the one under discussion. 5. The patient had received phenacetin.

"Cases of this kind are very confusing clinical problems. It is well to remember that in every case of exanthemata in adults the possibility of drug rashes must be kept in mind."

DEATHS DUE TO ILLUMINATING GAS.

THE city of Chicago reports that during the past five years 2,033 deaths have been caused by the inhalation of illuminating gas. The reports from all cities show a considerable loss of life resulting from gas poisoning, more than half of these deaths being purely accidental, according to the reports of authorities, and some classified as suicidal may have been accidental.

These facts were brought out at a legislative hearing last winter, at which time an effort was being made to secure the passage of an act requiring the registration of gas fitters. It was shown that, although dangers due to defective tubing are common, a proportion of rigid gas fixtures are imperfect because of installation by householders or others who have not the requisite ability to do this work properly.

It is quite evident that more could be done tending to diminish accidental deaths due to gas. There will always be accidents due to ignorance or carelessness for, in addition to imperfectly turned off gas cocks, a low-burning flame may be extinguished by a draft of air, and children sometimes tamper with gas fixtures.

We are not inclined to consider fatalities of this sort seriously enough, but when records show that whole families may be destroyed, there is certainly reason for careful and regular inspection and testing of all gas fixtures.

GOLD SALTS IN THERAPEUSIS.

Gold, in the form of one of its salts, as a therapeutic preparation has an ancient history. It was first suggested by Fallopius. Then, in the passage of the ages it passed out of remembrance, and was entirely forgotten until 1810. Chrestien, a physician of Montpellier, rescued it from this oblivion. He showed that it was useful as a substitute for mercury, and employed it in the treatment of "scrofula," that is, tuberculosis. The preparations which came chiefly into use were the chloride of gold, the chloride of gold and soda, and the oxide. Chrestien maintained that the chloride was far more active than perchloride of mercury, and that it was better tolerated. Moreover, that the gold salt was less prone to cause salivation than the mercurial one. The chloride of gold and soda was taken in the form of a pill, the dose recommended being from 1-60th to 1-10th of a grain daily. This preparation compounded with fat as an ointment forunction, was prescribed of the strength of 1-15th to 1-8th of a grain as an average dose in the course of a day.—*London Medical Press and Circular*.

THE INTERNATIONAL CONGRESS OF THE HISTORY OF MEDICINE.

At a meeting of the permanent committee of the International Society of the History of Medicine, held at Antwerp on April 11, it was voted to hold the Fourth International Congress of the History of Medicine at Geneva, Switzerland, during the third week of July, 1925. The following officers were elected:

President, Dr. Charles Greene Cumston, Geneva; Secretary General, Dr. A. de Peyer, Geneva (Rue Général Dufour, 20); President of Honor, Sir D'Arcy Power, London; Vice-Presidents of Honor, Dr. Edward B. Krumbhaar, Philadelphia, Penn.; Dr. Tricot-Royer, Antwerp; Dr. J. G. De Lint, Gorinchem, Holland; Dr. Charles Singer, London; The President of the Medical Society of Geneva for the year 1925.

TWO MASSACHUSETTS MEDICAL COLLEGES.

ACCORDING to statistics published in the *Journal of the American Medical Association*, the College of Physicians and Surgeons of Boston is recognized by State examining boards in California, District of Columbia, Massachusetts, Nevada, and Wyoming. Forty-five States will not admit the graduates of this school to examination.

Forty-six States will not admit the graduates of Middlesex College of Medicine and Surgery, located in Cambridge, to examination. California does not accept graduates of Middlesex. It is difficult to understand the reasoning of the California people. The Pharisees cannot claim the distinction of being the only people who strain at gnats and swallow camels.

News Items.

NOTES FROM THE WORCESTER DISTRICT MEDICAL SOCIETY.—The Wachusett Medical Improvement Society held a meeting, May 2, at Women's Relief Corps Hall, West Boylston, with Drs. Trask and Keay as hosts. Dr. Charles B. Stevens of Worcester addressed the gathering on "Early Diagnosis of Acute Contagious Diseases."

The Worcester Hahnemann Hospital has just completed a successful drive for \$300,000 for an addition to its present plant.

CONVICTION OF UNREGISTERED PRACTITIONERS.—Harmon P. MacKnight has been brought before the court, tried, convicted and sentenced to three months in the House of Correction. MacKnight has a record of having been before the courts in more than one state for alleged irregularities. He has sued the prosecuting officer, Mr. Arthur Keating, for \$4,000,000 and also for \$100,000, alleging conspiracy and tort. MacKnight does not employ lawyers, for he acts as his own attorney.

Murrell B. Dulysle has been tried, convicted and sentenced to pay a fine of \$100. It was alleged that he was a chiropractic operator. He has appealed from the sentence.

Obituary.

GEORGE AMORY SARGENT, M.D.

DR. GEORGE A. SARGENT, of the Harvard Medical School, class of 1888, died at his summer home in Randolph, N. H., May 6, 1923, at the age of 68. Born in Roxbury, July 26, 1854, he was the oldest son of Lieut.-Col. Lucius Manlius Sargent, Jr., and Letitia Amory Sargent, and great-great-grandson of Governor Sullivan of Massachusetts. After his graduation from Harvard College in 1876 he went to the South, where he was engaged in the cotton business with his uncle, George W. Amory. He remained three years in the South, and then went to a western state for his health. Returning to Boston, he entered Harvard Medical School, receiving his degree in 1888.

He was a member of the staff of the Boston Dispensary, of which one of his ancestors was an early benefactor. For many years he was physician to the Charles Street Jail. He became connected with the Board of Health in 1894, resigning some years later on account of severe heart trouble, from which he suffered until his death.

Dr. Sargent was a life member of the Appalachian Mountain Club, which he joined in 1883. He was one of a group of mountaineers who did much to open new paths on the northern peaks of the Presidential Range. With one or two others he projected the well-known "airline" path up Mt. Adams. In the years following graduation from college he was an ardent oarsman. Of short stature, he had long and muscular arms which he swung from side to side as he walked. Popular with his intimates, he was shy and not well known in the profession.

In 1898 he married Sally Prince Osgood of Salem, who survives him. He is also survived by a brother, Sullivan A. Sargent, and a sister, who is the wife of former Mayor Nathan Matthews.

RECENT DEATH.

DR. LEE SIMON SHONINGER, a Fellow of the Massachusetts Medical Society, died at New York City, April 7, 1923, aged 43. He was a native of New Haven, Conn., a Ph.B. at Yale, 1900, and M.D. Harvard, 1904. He practiced dermatology in New York.

BOSTON LYING-IN HOSPITAL.

221 Longwood Avenue.

DONATION AND VISITING DAY, FRIDAY, MAY 18, 1923.
FROM 11 A. M. TO 5 P. M.

The Hospital needs linen or cotton (old or new), groceries, vegetables, fruit (fresh or canned), old newspapers, baby clothes or young children's clothes (old or new), money, in large or small amounts.

NOTICES.

MEETING OF THE BOSTON ASSOCIATION FOR
THE PREVENTION AND RELIEF
OF HEART DISEASE.

AT THE PETER BENT BRIGHAM HOSPITAL, MAY 17, 1923
AT 8.15 P.M.

Dr. K. F. Wenckebach, professor of the first medical clinic of Vienna, will speak on Heart Disease. Professor Wenckebach is one of the leading authorities on heart disease in Europe.

The general medical public is cordially invited.

Professor Wenckebach will also give three amphitheater clinics at 12 o'clock noon at the Peter Bent Brigham Hospital, the Massachusetts General Hospital, and the Boston City Hospital on May 16, 17 and 18 respectively. All those interested are cordially invited.

The meeting of the Boston Association of Cardiac Clinics, formerly scheduled for May 17, at 8.15, at the Children's Hospital, subject "Rheumatism, Chorea and Heart Disease," will be postponed until fall.

ANNUAL SPRING CONFERENCE, NEW ENGLAND
DIVISION, AMERICAN RED CROSS.

Hotel Somerset, May 24 to May 26, 1923

Thursday, May 24

MORNING SESSION, 10 A.M.

The Red Cross in 1923, Arthur G. Rotch, Division Manager.

Charter Obligations:

- A. Service to the Disabled of the World War, Dr. Edgar O. Crossman, Dist. Manager, Dist. No. 1, U. S. Veterans' Bureau; Perley Ford, Commander American Legion, Maine Department; Arthur F. Sullivan, New England Division; Carl Hempel, Lynn Chapter.
- B. Service to the Regular Army and Navy.
- C. Disaster Relief, Roy M. Cushman, Director, Disaster Service, New England Division.
- D. The Red Cross as a Vital Force in Community Life, Cheney C. Jones, Superintendent, Home for Little Wanderers.

12.30 to 2 P.M.

Luncheon, Hotel Somerset (\$1.00 per plate).

AFTERNOON SESSION, 2 P.M.

(Miss Katharine Hardwick will preside.)

- Welcome to Boston, Hon. James M. Curley, Mayor of Boston.
- Red Cross Responsibility in International Crises, Dr. Kendall Emerson, Ch. Worcester Chapter and formerly Medical Director of A. R. C. in Europe.
- The Work in Greece, Miss Sophie Nelson, Recently with Red Cross in Greece.
- Volunteer Service Activities in Chapters, Mrs. C. C. Ely, Director, Volunteer Service, New England Division.
- Modern Methods in Education and the American Junior Red Cross, John F. Mahoney, Professor of Education, Boston University.
- The Chapter Responsibility to the Schools, Arthur W. Dunn, National Director, Junior Red Cross.
- The International Aspect of the Junior Red Cross, Director, Frantisek Bakule of Prague.

EVENING SESSION.

Concert by the Bakule Chorus of Czecho-Slovakia—Tremont Temple, 8 P.M.
(Special price tickets, at \$1.00 each, for good reserved seats, will be sold at the morning and afternoon sessions to delegates.)

Friday, May 25

MORNING SESSION, 10 A.M.

(Miss Katharine McMahon will preside.)

- Health Work: Review of Work Done in Past Year.
- Nutrition, Dr. Alice Blood, Professor of Dietetics, Simmons College.
- The Organization of Life Saving for Chapters, William M. Harris, Dir. Life Saving, New England Division.
- The Relation of the Private Organizations to Health Work, and the Place of the Red Cross, Prof. C. E. A. Winslow, Yale University.

Luncheon, Hotel Somerset (\$1.00 per plate), 12.30 to 2 P.M.

AFTERNOON SESSION, 2 P.M.

(Miss Mary Nelson will preside.)

- Health Work Continued:
- Organization of Home Hygiene Classes in Chapters.
- What Nursing Committees Are Facing, Miss Elizabeth Fox, Director, P. H. Nursing Service, National Headquarters.

Business Session.

Suggestions of Value from the Two Days' Conference, Miss Katharine D. Hardwick, Dir. Chapter Service.

4.30 P.M.

The Volunteer Service Committee invites delegates interested in Volunteer Service activities to have tea at the home of Mrs. Richard M. Saltonstall, Chestnut Hill.

Saturday, May 26

SECTIONAL CONFERENCES.

Home Service; Nursing; Junior Red Cross. Places for these Conferences to be announced later.

PUBLIC INFORMATION SERVICE—SPECIAL ROUND TABLE DINNER CONFERENCE.

Thursday, May 24

5.30 to 7.30 P.M. Boston Women's City Club,
40 Beacon Street.

This Conference is for delegates interested in Chapter and Branch Public Information Service. There will be two brief addresses and general discussion of practical details. Those who wish to attend are requested to notify Earl F. Gates, Division Director of Public Information, not later than May 16, and at the same time send in one important question or problem they wish answered or discussed. The Conference will adjourn in time for those present to attend the Bakule Chorus Concert. Dinner tickets are \$1.10.

SOCIETY MEETINGS.

The annual meeting of the Massachusetts Medical Society will be held in Fitchburg, June 12 and 13.

STATE, INTERSTATE AND NATIONAL SOCIETIES.

American Pediatric Society meeting, May 31, June 1 and 2, 1923, at French Lick Springs Hotel, French Lick, Ind.; H. C. Carpenter, Secretary.

June, 1923.—The Nineteenth Annual Meeting of the National Tuberculosis Association will be held in 1923 in Santa Barbara, Calif., from June 20 to 23, inclusive, in the Recreation Center.

June, 1923.—American Medical Association, San Francisco, June 25-29, 1923; Olin West, Chicago, Ill., Secretary.

July, 1923.—Massachusetts Association of Boards of Health, July 26, Nantasket; W. H. Allen, Mansfield, Mass., Secretary.

October, 1923.—Boston Health Show will be held in Boston, October 8-12, inclusive.

October, 1923.—Meeting of the American Health Association will be held in Boston, October 8-13, inclusive.

For list of Officers of the Massachusetts Medical Society, see page xlii of the Advertising Section.